REPORT RESUMES

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USING AUDIO-VISUAL MATERIALS IN THE ELEMENTARY CLASSROOM.

BY- FOSTER, I. OWEN

INDIANA STATE DEPT. PUBLIC INSTR., INDIANAPOLIS

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THIS BULLETIN WAS PREPARED TO PROMOTE THE EFFECTIVE USE OF AUDIOVISUAL MATERIALS IN ELEMENTARY SCHOOLS. CHAPTERS ARE GROUPED UNDER THE HEADINGS, PHILOSOPHY, RESOURCE UNITS, AUDIOVISUAL MATERIALS IN SUBJECT AREAS, AND EFFECTIVENESS. SUBJECT AREAS DISCUSSED ARE SOCIAL STUDIES, SCIENCE, LANGUAGE ARTS, ARITHMETIC, HEALTH AND SAFETY, AND ART AND MUSIC. FOLLOWING EACH CHAPTER ARE REFERENCES ON RELATED MATERIALS. ILLUSTRATED. (MS)

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USING AUDIO-VISUAL MATERIALS in the ELEMENTARY CLASSROOM

State of Indiana
DEPARTMENT OF PUBLIC INSTRUCTION
Bulletin No. 228

WILBUR YOUNG
State Superintendent of Public Instruction
1959

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USING AUDIO-VISUAL MATERIALS IN THE ELEMENTARY CLASSROOM

Prepared by a Committee

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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FOREWORD

The Cleveland Press on March 31, 1958, in an editorial entitled "More to Teach, More to Learn" made the following statement: "For it is true that people in general have found it expedient to blame the schools for the fact that the United States is running second in the space age." School people have long since become accustomed to the fact that when a shortcoming is recognized in our democratic processes, the public begins to criticize our educational institutions. The pattern generally followed is for the colleges and universities to receive the first blame. They, in turn, blame the American high schools for not providing a sufficiently good product, and the high schools, in their turn, tend to blame the educational program in our elementary schools.

Educational leaders always welcome criticism because it gives them the opportunity to prove that the products of our schools are good. It also gives American educators the opportunity to show the public how American educational processes could be materially improved if a greater per cent of the tax dollar were allocated to education.

Among the most advanced tools for improving educational techniques are audio-visual materials, equipment, and supplies. Not only are these items expensive, but they are also of no value unless thoughtfully selected and correctly and wisely used. Fortunately, a considerable amount of knowledge concerning the selection and use of audio-visual equipment has been disseminated to administrators of our secondary schools, although little material is as yet available on the proper use of audio-visual materials in our elementary schools. Nevertheless, the Indiana State Department of Public Instruction made its first contribution in 1956 to this available general information concerning the organization and administration of audio-visual programs. In that year, the Department of Public Instruction published Bulletin No. 218, *The Audio-Visual Program*, which was a guide for initiating and expanding audio-visual programs in the schools of Indiana.

Bulletin No. 228 has been prepared to ensure increasingly wise and resourceful use of audio-visual materials, especially in the elementary schools of Indiana and the nation. Because of the great need for a publication of this kind in Indiana today, I am sure that educational administrators and elementary teachers of our State will find this bulletin useful and beneficial.

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Let us, then, with courage and confidence pursue our own federal and republican principles, our attachment to our union and representative government. . . . enlightened by a benign religion, professed, indeed, and practiced in various forms, yet all of them inculcating honesty, truth, temperance, gratitude, and the love of man; acknowledging and adoring an overruling Providence, which by all its dispensations proves that it delights in the happiness of man here and his greater happiness hereafter; with all these blessings, what more is necessary to make us a happy and a prosperous people? Still one thing more, fellow citizens—a wise and frugal government, which shall restrain men from injuring one another, shall leave them otherwise free to regulate their own pursuits of industry and improvement, and shall not take from the mouth of labor the bread it has earned. This is the sum of good government, and this is necessary to close the circle of our felicities.

—*Thomas Jefferson, First Inaugural Address*

1

PHILOSOPHY

2. *Today's audio-visual materials challenge us by their variety and scope.*

CHAPTER 1

AUDIO-VISUAL EDUCATION—WHAT IT IS AND WHY USE IT

Today, a good environment for learning demands the use of a wide variety of instructional materials. Today's teacher helps children explore every possible approach to understanding and as a result children continually seek answers to questions important to them. They are taught to seek the meaning behind the printed symbol and to bring meaning to the words they read. While seeking, they also learn that the printed page is only one of many sources of information. One measure of the stimulus to learning within the classroom today is the variety of instructional materials which a teacher uses.

WHAT IS AUDIO-VISUAL EDUCATION?

There are five avenues of learning: *seeing*, *hearing*, *smelling*, *tasting*, and *feeling*. The term *audio-visual* is used to describe those instructional materials and experiences which do not depend primarily on reading to convey their meaning, but appeal to one or more of the five senses. The audio-visual program is becoming one that includes not only chalk boards, flannel boards, maps, globes, and charts, but also still pictures, both projected and non-projected, motion pictures, television, phonograph records, tape recordings, and educational radio programs. In all, there are over forty different types of audio-visual materials.

All Indiana teachers use audio-visual materials in their classrooms at one time or another, in varying degrees and with varying success. Chalk, crayon, paper, maps, globes, charts, and dozens of other items are absolute necessities; and all textbooks contain pictures. Seldom has a teacher ever questioned the value of these time-honored teaching tools. Now, moreover, since the close of World War II, we have even newer, and more dynamic, types of audio-visual equipment with which to make a powerful educational impact in the classroom. In general, these materials and equipment fall automatically into the following categories: (1) powerful lamps to project pictures on a screen, as silent filmstrip and slide projectors; (2) amplifiers to project sound, as phonographs, tape recorders, and radios; (3) a combination of both, *i.e.*, sound films, television, or sound filmstrips.

GENERAL VALUES OF AUDIO-VISUAL EDUCATION

Community Demands Upon Education. The evidence of educational research and the judgments of both teachers and administrators justify a strong audio-visual program. Community demands upon education are increasing. Faced with shortages of teachers and classrooms, the American educational system must still meet the challenge of preparing American youth for their role in the world of tomorrow. No age has ever demanded more wisdom, more loyalty, and more uncommon men than this one. All teachers have on their shoulders a tremendous and ever-increasing load of responsibility, which they must have the willingness and the capacity to accept:

1. Certain parents are demanding, rightly or wrongly, that children be taught vocational skills in both elementary and high school, in order to prepare them to enter specialized trades upon graduation.
2. To insure survival, patriotic organizations, armed forces, and common sense are demanding more instruction in science.
3. Parents are looking to the school for help in the social development of their children.
4. Social service agencies, mental health authorities, and church leaders are desiring more guidance services in our daily programs.
5. Juvenile authorities are seeking the cooperation of the schools in motivating after-school activities that are worth-while.
6. Colleges and universities are demanding of college entrants an increasingly greater maturity in thinking, along with a sounder background in basic skills.
7. Leading educators are insisting that development of proper attitudes, interests, and appreciations is as important to the perpetuation of our democracy as the memorizing of facts.
8. Parents desire good health and safety habits for their children, frequently expecting a warm lunch to be served at school.

A careful look at these requests will reveal that most of them have come during the last ten or fifteen years. Teachers themselves would be the very last to say that children should not have all these advantages, but school days and school years are still approximately the same length. Although teachers are better trained, they have no greater powers of endurance than formerly. Classes are increasing in size, and discipline is becoming a serious problem. Doubtless the teacher's first reaction will be that all these demands cannot be met and still leave time for teaching the three R's. When we recall, however, that today in the United States one out of four marriages ends in divorce, that twenty-five per cent of our youth need psychiatric help, and that nation-wide juvenile delinquency is increasing, it becomes important for teachers to "go that extra mile." It also becomes important that learning processes be aided by the newest methods of instruction.

CLASSROOM VALUES OF AUDIO-VISUAL EDUCATION

In addition to the community demands upon education, there are real problems within the classroom. Perhaps these are of even more concern to the teacher than to society since they affect the learning environment to be created.

3. *Audio-visual materials used in the classroom are an integral part of the teaching-learning process.*

Competition For Attention. Today, television, motion pictures, dramatized radio programs, picture magazines, hobby sets, and dozens of other attractive, stimulating sources of information compete for a child's energy outside the classroom. With their powerful impact upon his imagination, they have made traditional avenues of classroom learning less attractive.

Instead of criticizing these outside media for capturing attention, however, today's teacher accepts their aid in imparting knowledge and achieving objectives. For example, because sensory experiences are always humanly attractive, audio-visual materials awaken interest by permitting children to experience information concretely through sight and sound as well as through reading. To be sure, this attractiveness, along with some early misuse of filmed materials, has caused opposition to audio-visual materials among those who maintain that learning is far more than a pursuit of entertainment. Nevertheless, a relationship between attractiveness and effectiveness of teaching must be acknowledged. Audio-visual materials, therefore, because they do provide distinctive sensory experiences, become valuable in the learning process as supplements of traditional methods.

Teachers Need Modern Tools to Meet Modern Demands. Teachers are builders—even more importantly than are carpenters, electricians, and mechanics—because they shape the mental and physical inheritance of our nation's youth. Equally with persons in these other professions, therefore, teachers need highly specialized tools. With increasing speed and permanence, these newer tools for learning stimulate and motivate interest, convey facts and information, develop and alter concepts, and establish the educational climate for the development of attitudes, interests, and appreciations. Today, beginning teachers are choosing to teach in schools which furnish these tools.

Increased Curriculum Content. Margaret Mead, the noted anthropologist, once said that the trouble with today's schools is that teachers who never heard of radio until they were nearly grown have to contend with boys and girls who have never known a world without television. Recent surveys indicate that today's average first-grader coming out of a "TV home" probably has the speaking vocabulary and factual knowledge of a third-grader of pre-television days. In many instances these words and facts are of a technical nature. Likewise, a surprising amount of the science taught on the high school level twenty-five years ago may now be found in our lower-elementary textbooks. The air age, jet propulsion, atomic energy, and the United Nations are well known additions to curriculum content. There are also, however, literally thousands of other new units of material which have been added to our total educational picture and which teachers are expected to teach. Hence, many teachers do have a definite problem in the constant study demanded to meet these continual changes in their subject-matter fields. The professional education of teachers is inevitably a continuing process, never completed. Many skimp, save, and take summer jobs to accumulate enough money for additional schooling. Especially in science and social studies are additions to curriculum coming in an avalanche. Hours of "free time" must be spent in further study if today's teacher is to bring the latest information about peoples of other countries or about atomic development to eager young minds.

Audio-visual materials, carefully selected, can bring in an army of technical assistants to supplement the classroom teacher's personal knowledge, namely, the research departments, writers, and technicians of major film, filmstrip, and recording producers. Cooperatively, the best possible environment for learning is thus created.

Permanent Learning. Education, like business and industry, must plan to accomplish more in less time, if it is to meet modern demands. Likewise, because of increased educational costs, learning must necessarily be permanent; taxpayers are willing to stand increased costs of education only if they feel that their expenditure is securing to their children valuable knowledges, skills, and appreciations. Extensive studies in educational research indicate that through careful use of audio-visual materials, pupils actually retain information so learned over longer periods of time. Perhaps even more important are the studies indicating that learning by use of audio-visual materials can be accomplished in less time than by other methods.

Expanding Class Enrollment: Increased Span of Individual Ability and Increased Variety of Home and Educational Backgrounds. Teaching has never been one of the better-paid professions—it is not now; but a survey of conditions has revealed why teachers are more concerned today about teaching loads and classroom teaching conditions than about low salaries. Teaching loads have been increasing at so rapid a rate for the past ten years that free periods have become a thing of the past in the average system, and class enrollments are up about 20%. There are two conditions which subtly contribute to this overloading:

(1) Because our philosophy concerning the failing of students has changed, we have widened tremendously the range of individual ability in a given class.

(2) Because of television, shifting industries, broken homes, extensive travel, especially by families of service-connected personnel, and many other influences, the pupils of today's average class present an increasingly wide variation in home and educational background.

As educators, we must continually bear in mind that one of our chief tasks is to supplement each pupil's experience at its point of deficiency and so broaden his concepts. One of the most important uses of audio-visual materials in the classroom, therefore, is to provide for pupils with such varied and dissimilar experiences a common background of experience. Films, for example, can give the entire class much to think and talk about, thus bringing children and ideas together. By giving concreteness to spoken and printed words, films also increase a child's ability to understand and communicate. Equally good are field trips, educational radio, filmstrips, and similar materials to create common background and lessen deficiencies in home background which may limit a child's awareness.

Need For Aids to Reading Readiness. Today's teachers are convinced that weak pupils learn better from a variety of materials used to supplement the printed symbol.

In all areas, but especially in reading, a broad background is important, for children who read must first have wide opportunities—either directly or through controlled experience—to experience the things, ideas, processes, and events to which printed symbols refer. Only on the basis of such pre-experiencing can the printed symbol take on meaning.

Teachers have sought methods to stimulate, encourage, and help weak pupils, as well as to give scope and incentive to the bright ones.

Teachers are required by law to take all, keep all, and treat all on equal terms—the leaders and the followers, the gifted and the slow, the "good" and the "bad." Under the necessity to create a successful, harmonious, working atmosphere for this diversity, teachers will find especially helpful the wealth of audio-visual materials now available. One principal of an elementary school in Chicago tells of an experiment in the teaching of reading.

> A group of elementary teachers who had been disturbed about first, second, and third-grade classes which were having difficulty with vocabulary and comprehension, decided to use audio-visual materials to supply a common vocabulary and a background of shared experience. These teachers agreed to experiment with the Encyclopaedia Britannica "film-readers," a series of correlated films and readers. Pupils who were given books corresponding to films which they were to see, were briefed in a discussion period, and alerted for unfamiliar words. After correlation of film showings with classroom reading periods and tests, teacher after teacher reported nearly 100 per cent comprehension. The effect on the two exceptional groups, the slow learner and the bright child, was most marked. A slow learner in the first grade, for example, who had not previously been able to keep her place, was able not only to keep her place but also to read such sentences as, "Then they quickly got the hose ready." Another child with an IQ in the low seventies read with no trouble, "Now the firemen are practicing their work." Of special interest to the teachers was the fact that the library table became more popular than ever before.[1]

HOW AUDIO-VISUAL MATERIALS IMPROVE TEACHING

Influence of Educational Films on Teaching Methods. It is interesting to note the enthusiasm for educational films evinced by teachers seeking ways to improve their own teaching techniques. Obviously, an excellent teacher will always teach more effectively than a poor one, regardless of the materials used; but the best regular classroom teacher can find additional assets in audio-visual materials. For example, good new teaching techniques can be acquired by watching the filmed teacher. So useful is this indirect communication of new teaching methods that films are now being widely used in the in-service training programs of our school systems.

Audio-Visual Materials Bring the World Into the Classroom. Today's child is living in a world of ever-widening horizons which challenge his teacher with the responsibility of acquainting him with the color, motion, and meaning of this world. Today's classroom must present places and customs which are miles or centuries away, for current front-page news is frequently date-lined from parts of the world seldom visited which have suddenly become politically and socially important. The Korean conflict subsequent to World War II brought into prominence certain Asian peoples hitherto practically unnoticed. The racial studies of today can no longer be confined to Europe; they must include the Malay Peninsula, the islands of the Pacific, Russian territories, and little-known India. Many Indiana classrooms still contain outdated maps which present the South Pacific as a vast uncharted stretch of blue water; yet the major battles of World War II were fought on islands within this vast uncharted mass of blue.

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[1] Harriet [illegible], "An Adventure with Film-Readers," *Educational Screen*, January, 1951.

Direct experiences to broaden a pupil's understanding of people and time are indeed extremely difficult to obtain, and as Edgar Dale so aptly points out, one is inevitably "the prisoner of his own life-time" and also the "prisoner of his own life-space." *Audio-visual materials* are, however, an especially effective means of achieving a supplemental, vicarious extension of the range of geographic experiences. At least seven splendid films will introduce pupils to Germany who cannot travel there.[1] Chinese family life can be experienced vicariously from radio programs[2] as well as from countless films and filmstrips.

Until recently, news commentaries and much on-the-spot reporting, quantities of good music, excellent dramas, avowed educational programs, and valuable informational programs not educationally labeled were largely lost to the classroom. Now, however, teachers increasingly concerned with the importance of current information are making extensive use of tape recorders. Programs and special events recorded at any hour can later be fitted into classroom work whenever needed. Today's classroom thus becomes a box seat for presidential inaugurations, Senate Committee hearings, or new dramas.

Cutting through the physical limits of time and space, teachers can now bring the world into the classroom by careful selection of films, filmstrips, still pictures, models, exhibits, recordings, or television.

Audio-Visual Materials Are a "Gateway to Learning." The development in school systems and in individual classrooms of audio-visual approaches to the communication and sharing of knowledges and skills can be a constant inspiration. A changing philosophy regarding learning is taking place. Leadership in this development is growing. The adults of tomorrow are the students of today. Potential learning situations motivate those with the "vision" and wish to go forward. This vision cannot be a projector this year, a film the next, a record player or transcription player the next, and other "nibbling" attacks. The problem is real, and teachers must look ahead, planning conscientiously for the "Utopian classroom of the future," as well as being constantly alert to improve the learning environments of today. As the Audio-Visual Commission on Public Information has indicated, it is necessary for schools and their publics to open "the gateway to learning."[3]

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[1] *Berlin Airlift; Children of Germany . . . ; Gateway to the Tyrol; German Children; Heidelberg; River Rhine; Western Germany.*

[2] See *The Ways of Mankind,* sponsored by the National Association of Educational Broadcasters.

[3] See *Gateway to Learning,* pictorial booklet.

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Gateway to Learning, 16-page, pictorial booklet presented by the Audio-Visual Commission on Public Information, in cooperation with the National Audio-Visual Association.

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FILMS

Berlin Airlift, 27½ min, sd, color, YAF; McGraw-Hill, 1950.

Children of Germany (In The Rhineland), 14 min, sd, color, EBF, 1955.

Gateway To The Tyrol, 10 min, sd, b & w, Fleetwood Films, 1954.

German Children, 12 min, sd, color or b & w, [illegible] Films, 1953.

Heidelberg, 10 min, sd, b & w, Fleetwood Films, 1954.

River Rhine, 22 min, sd, b & w, Swiss National Travel Office, 1951.

Western Germany, 11 min, sd, color or b & w, Coronet, 1954.

RADIO

The Ways of Mankind, a series of radio programs sponsored by the National Association of Educational Broadcasters.

CHAPTER II

PLANNING FOR THE USE OF AUDIO-VISUAL MATERIALS

The ideas in this chapter come from over two hundred teachers in Indiana[1] who responded to a questionnaire on planning for the use of audio-visual materials, which was developed by members of the handbook committee. In their opinion, planning for the use of audio-visual materials is merely planning to teach so that pupils will learn best. It is arranging the environment and experiences of pupils in such a way as to provide each pupil with the greatest number of stimuli which will produce the greatest amount of learning. These teachers endorse learning which induces behavior culminating in the greatest possible satisfaction to the individual and in the maximum contribution to society. Agreement was unanimous that there are four important aspects of such planning:

(1) a clear *understanding of pupils*: their backgrounds, interests, needs; the demands which society will make on them.

(2) *information about materials*; criteria and the procedure for evaluating and selecting them.

(3) *skill in using the materials selected*.

(4) adequate teacher and pupil *preparation for using the materials selected*.

CHILDREN'S NEEDS AND INTERESTS—SOCIETY'S DEMANDS

As an elementary teacher you are a human engineer bringing pupils together with places, people, ideas, things, and methods of doing things. You are a human engineer with the responsibility of creating the best possible learning environment for your pupils and directing their learning activities. You, your pupils, their parents, and your supervisors will evaluate the results of your efforts.

What is the starting point in this complex educational process? Every one agrees that it is pupils themselves. Therefore, in planning to use audio-visual materials, the teacher must be sure to understand the basic principles of the learning process in relation to audio-visual experiences.

First, the eyes, ears, and nerve endings which respond to pressure, heat, cold, odors, and tastes are the avenues of learning. They are the means of perception which condition all learning by their number, variety, and scope. Because perceptual experiences must be meaningfully interrelated in order to lead to understandings, a teacher has the re-

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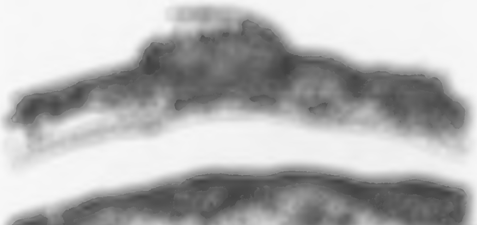
[1] See Table I, pp. 13-16.

AUDIO-VISUAL MATERIALS
HELP PUPILS UNDERSTAND
THINGS WHICH ARE . . .

too big . . .



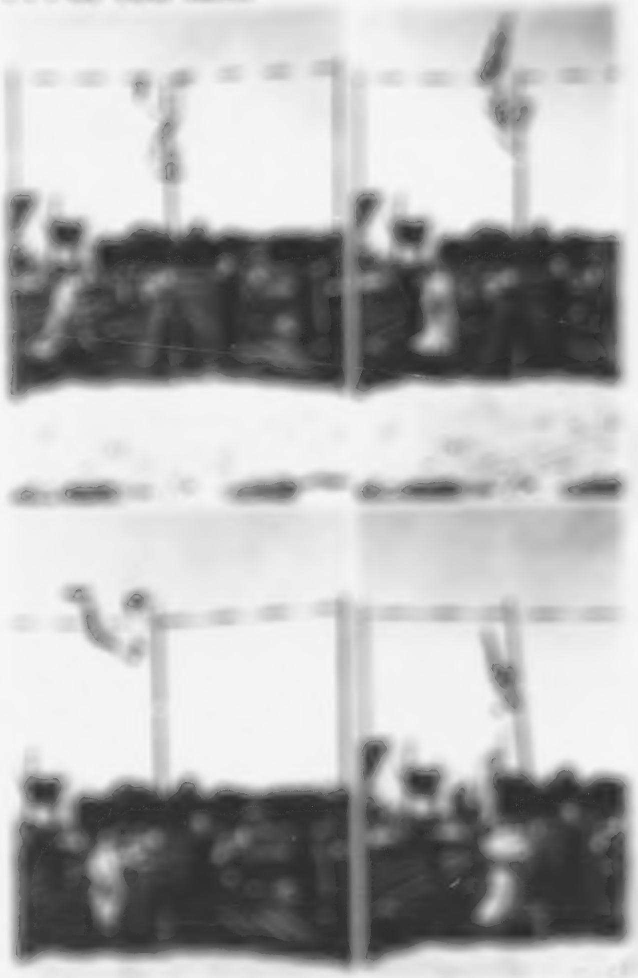
too small . . .

too slow . . .

too ancient . . .

too far away . . .

. . . or too fast.



sponsibility for selecting and arranging experiences to meet the needs of pupils.

Let us consider what this means in a practical situation. An intermediate-grade group is studying how a plant grows. Most children approach this study with superficial experience and interest. It is therefore desirable to find out their experiences with seeds, plants, and plant growth—also their interests. On the basis of these findings, experiences may be planned such as actual planting of seeds, seeing a motion picture with time-lapse photography showing plant growth, observing plants growing in flower and vegetable gardens, discussing plant growth with other people, and reading about the subject. From these experiences pupils can sort and discard the irrelevant facts and then accept, and associate their true perceptions of how plants grow. Throughout the unit, individual differences in the group must also be taken into account—range of experiences, socio-economic levels, intelligence, vocabulary development, reading level, physical handicaps, and unusual abilities. In this way, the individual student will get as much as possible out of the work and will also give as much as possible to the group.

For teachers, the second consideration in planning will be society's interests and demands. What adults expect children to learn will always influence, to some degree, both what is interesting and what should be learned. In the planning of learning experiences, teachers of Indiana should accept and recognize as an influence the responsibility of one generation to transmit learning to the next.

LEARNING ABOUT AUDIO-VISUAL MATERIALS

The extent of our knowledge of audio-visual materials, puts a ceiling on our use of them. This inescapable fact imposes upon every teacher a real responsibility to know what materials will help her design the richest learning experiences for her pupils. Only the teacher's knowledge of the soil erosion in one section of the schoolyard, or life along a nearby stream, or the pasteurizing equipment at a local dairy can make available to pupils real, concrete experiences with these phenomena and materials. Only specific knowledge of motion pictures, filmstrips, and recordings can "bring the world into the classroom" through these media.

How may teachers learn about these materials? Fortunately, there are many ways, and teachers should use them all. From the questionnaires, the following list of methods has been prepared as a check list against which readers may evaluate their own avenues of information concerning audio-visual materials. These methods are recommended to teachers in Indiana.

CHECK LIST

	Yes	No
1. Studying audio-visual textbooks (particularly bibliographies and recommended lists)	____	____
2. Consulting audio-visual journals	____	____

3. Systematically referring to audio-visual indexes, catalogs, card files, *etc.* ____ ____
4. Checking audio-visual articles, advertisements, and lists in general elementary education journals ____ ____
5. Using descriptive materials of producers and distributors such as teachers' guides, announcements, and textbook correlation charts ____ ____
6. Collecting and using university and other educational catalogs, listings, and pamphlets ____ ____
7. Consulting audio-visual coordinators and directors, supervisors, other teachers, representatives of material and equipment companies, and audio-visual leaders ____ ____
8. Taking courses in audio-visual education ____ ____
9. Attending professional meetings and conferences dealing with audio-visual education ____ ____
10. Belonging to professional organizations concerned with audio-visual education ____ ____
11. Participating in in-service training programs dealing with the use or preparation of audio-visual materials ____ ____
12. Serving on previewing committees to determine the possible contributions of materials ____ ____
13. Finding out the materials available in one's own school and community ____ ____

SURVEYING LOCALLY AVAILABLE MATERIALS

The teacher's personal survey of locally available materials is so important a source of help, and yet so often neglected, that the committee responsible for this bulletin urges all elementary teachers in Indiana to have definite information on the audio-visual materials that are locally available to them. If you know what you have, you can find what you need and make plans to use what you have. The audio-visual coordinator in your building may be able to provide you with an inventory of the resources in your building, school system, and community. Such an inventory is relatively easy to compile and each school system or school should have one.

For each entry, physical description and location should be given. Just the act of checking may uncover profitable items of which some teachers and principals did not realize the existence. An inventory properly prepared, reproduced, and distributed to all teachers, will inform them of many a usable map, globe, set of charts, recording, or transcription, collection of flat pictures, or other audio-visual materials owned by the school. This interchange of information and use within a building is one of the vital factors in a good instructional program.

As important as the materials in the school are the resources in the community—both physical and human. Parents having particular talents in music or dancing, or owning collections of clothing from Japan, Africa, or some far region may contribute to a unit of work. Ministers, doctors, and other professional people may provide important information not otherwise available. Policemen, firemen, judges, and other public employees may help pupils appreciate public services. Workers in the community—metal workers, concrete workers, chicken raisers, basket weavers, and merchants—can present helpful firsthand experiences.

The physical resources of the community—its factories, stores, museums, art galleries, quarries, mines, railroad roundhouses, and fire stations—are only a few of the materials which hold fascination and provide elementary pupils with ideas and information. Survey and use of community resources in Indianapolis and New Albany have resulted in two developments of great value to teachers. The Indianapolis Public Schools have published a guide for field trips which has been an asset to planning. New Albany provides both a school tour bus and a planning and conducting service which relieves teachers of much routine arranging and managing of field trips.

When a survey of audio-visual materials is completed by teachers in any school system, the results should be discussed at teachers' meetings or conferences. Every teacher should help to keep the inventory up-to-date by addition or deletion as newer materials become available or older ones obsolete. Moreover, the critical judgment of teachers and supervisors should be used in evaluating materials to be dropped or added. More important, even, than initiating an inventory of educational materials is the continuous task of maintaining it.

BASIC SOURCES OF INFORMATION ON AUDIO-VISUAL MATERIALS

Audio-visual materials generally come from four main sources—the school itself, the community, the city or county school system, and such outside sources as film libraries. Information about materials from outside sources appears in commercially printed publications, but locally available materials must be found and publicized by a member or members of an individual school or school system. In the individual school, the audio-visual coordinator should be able to provide information on all materials in the building. As has been pointed out, he should have a list of all audio-visual materials in the building, including thermometers, filmstrips, recordings, and exhibits. Not only should he be able to tell you what is available in the school, but he should also arrange for you to use it.

In addition, the coordinator should have a guide to community resources, which contains, besides descriptions of these resources, information concerning persons with whom to make contact, length of time required for the activity, as well as its cost, and curriculum correlation. If such a guide is not available, it will be helpful to develop one for personal or school use. Over and over again, respondents to the questionnaire answered, "I did it on my own," to such questions as, "How did you find out about materials? How did you learn to operate equipment?" A survey of community resources and a guide for using them may be your starting point in planning for use of such materials. Include, in such a survey, resource persons who can tell about the history and growth of the community, their jobs in the community, or their experiences in the world outside the immediate community.

Many city school systems are cooperatively developing audio-visual programs. Directors of such programs have the responsibility of providing all teachers in the system with information concerning available materials, either through catalogs, catalog cards, or mimeographed sheets. In any event, discover and use any materials possessed by your school system.

Information concerning audio-visual materials can also be gleaned from so large a number of sources not primarily devoted to them that a complete list would be too lengthy for inclusion in this publication. Teachers should therefore be encouraged to watch for audio-visual materials in magazines, books, and newspapers, and to discuss such materials with their colleagues and supervisors.

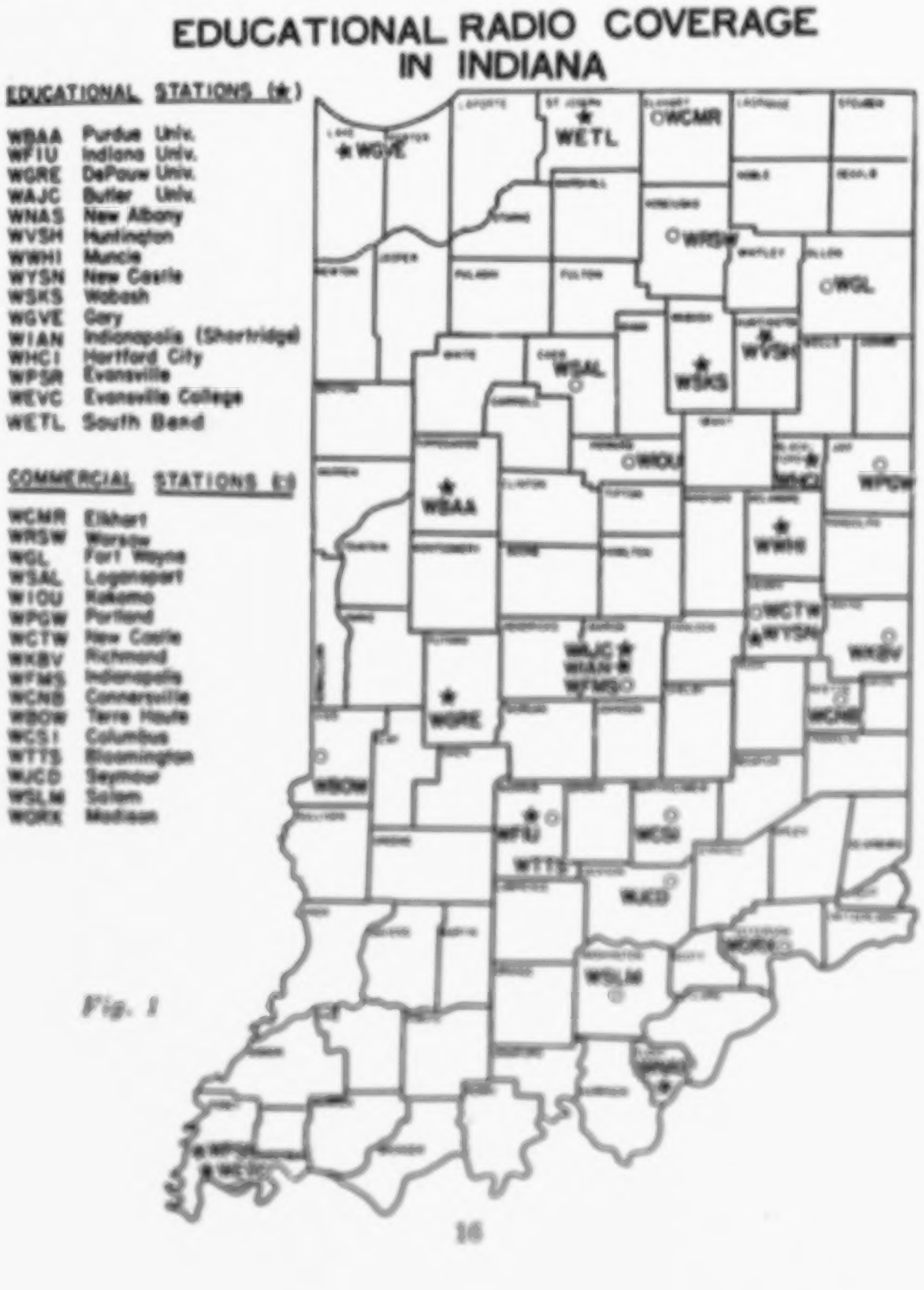

EDUCATIONAL RADIO COVERAGE IN INDIANA
EDUCATIONAL STATIONS (★)
WBAA Purdue Univ.
WFIU Indiana Univ.
WGRE DePauw Univ.
WAJC Butler Univ.
WNAS New Albany
WVSH Huntington
WWHI Muncie
WYSN New Castle
WSKS Wabash
WGVE Gary
WIAN Indianapolis (Shortridge)
WHCI Hartford City
WPSR Evansville
WEVC Evansville College
WETL South Bend
COMMERCIAL STATIONS (○)
WCMR Elkhart
WRSW Warsaw
WGL Fort Wayne
WSAL Logansport
WIOU Kokomo
WPGW Portland
WCTW New Castle
WKBV Richmond
WFMS Indianapolis
WCNB Connersville
WBOW Terre Haute
WCSI Columbus
WTTS Bloomington
WJCD Seymour
WSLM Salem
WORX Madison
WGVE
WETL
WCMR
WRSW
WGL
WVSH
WSAL
WSKS
WIOU
WHCI
WPGW
WBAA
WWHI
WCTW
WYSN
WKBV
WAJC
WIAN
WFMS
WCNB
WGRE
WBOW
WFIU
WCSI
WTTS
WJCD
WORX
WSLM
WNAS
WPSR
WEVC

Fig. 1

A number of catalogs and indexes are devoted entirely to providing basic information on audio-visual materials. Teachers should have access to all or most of these publications and should check them at least once or twice a year to discover new materials. A list of the more important catalogs and indexes appears at the end of this chapter.[2]

CHARACTERISTICS OF A GOOD AUDIO-VISUAL PROGRAM

The use of audio-visual materials is hindered or expedited by the school's audio-visual program and the relationship of teachers to it. Although teachers have some individual responsibility in locating and selecting materials, certain services should be provided by the school, such as the following:

1. Audio-visual coordinator qualified by training and experience to coordinate the audio-visual program.
2. Professional and technical assistance from the audio-visual coordinator in the following activities:
    - (a) selecting the best available materials
    - (b) planning for their use
    - (c) procuring materials from outside sources
    - (d) confirming availability of materials well in advance of the date of use
    - (e) distributing materials to classrooms
    - (f) providing equipment in good operating condition
    - (g) assisting in evaluation of the effectiveness of the audio-visual materials
    - (h) making suggestions for their future improvement
3. Provision of adequate classroom facilities for using all types of materials.
4. Provision of an adequate budget.
5. Provision of materials and equipment needed in the preparation of inexpensive audio-visual materials.
6. Development of a school philosophy encouraging teachers to use audio-visual materials and interchange ideas, materials, and experiences.
7. Continual evaluation of the effectiveness of the audio-visual program and modification of it in terms of the best interests of the boys and girls.

DEVELOPING SKILL IN USING AUDIO-VISUAL MATERIALS

Every teacher must develop personal skill in using audio-visual materials.[3] The following list of activities to increase such skill is derived from suggestions made in response to the questionnaire.

1. Exchanging ideas with fellow teachers.
2. Participating in in-service training programs.
3. Insisting that each teacher use audio-visual materials individually and not in combination with other teachers.

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[2] See pp. 22-4.

[3] See p. 26.

4. Developing a personal file of teaching materials including posters, booklets, object materials, and evaluations of materials used.
5. Borrowing materials from health agencies, such as, the State Board of Health and the Dairy Council.
6. Using the opaque projector in art education for teaching such concepts as color harmony, letter classification, and forms.
7. Sharing audio-visual publications by making them available in the library for teachers.
8. Working on committees for selecting films to be purchased.
9. Making charts, flash cards, murals, felt boards, graphs, bulletin-board displays, and exhibits.
10. Having pupils help to develop a picture file.
11. Working with student audio-visual assistants who help distribute materials to teachers, operate equipment, return materials, and make the simpler types of audio-visual materials.
12. Using a tape recorder to improve reading; making a "make-believe" TV set; making a variety of arithmetic devices; and working with parents in making a motion picture.
13. Giving reports on use of audio-visual materials to such groups as A. C. E.
14. Careful study of instructions provided by equipment manufacturers and of teachers' guides supplied by film and filmstrip producers.

Teachers are urged to use their creative imagination in integrating their knowledge of the objectives of a given unit of work with the materials used in attaining these objectives and with the type of group being taught. Skill in using audio-visual materials will be improved by experiment and evaluation in terms of the following characteristics of effective teaching-learning experiences:

1. Materials are a means to an end—not an end in themselves.
2. Materials meet standards of acceptability:
   a. Give a true picture.
   b. Contribute meaningful content.
   c. Are appropriate for age, intelligence, and experience of learners.
   d. Are in a satisfactory physical condition.
   e. Have an accompanying teachers' guide.
   f. Are worth the time, expense, and effort.
3. The teacher, with the help of the audio-visual coordinator, prepares to use material by consulting teachers' notes, previewing the material, studying the teacher's guide, and establishing the relationship of these activities to the remainder of the unit of work.
4. Group-readiness precedes purposive use of material. A need for the experience has been established in advance.
5. Use of the material, whether motion picture, recording, or filmstrip, *etc.*, is handled with mechanical efficiency.
6. Evaluation is made by measuring a particular project in the following respects, with a view to possible future improvement:

(1) Applying or using the information.
(2) Extending or broadening the ideas.
(3) Testing for mastery of ideas.
(4) Discussing reactions to the material.
(5) Relating information to previous experiences.

TEACHER AND PUPIL PREPARATION

Planning for the use of audio-visual materials includes preparation of both teacher and pupil.

Teacher Preparation

1. Plan to include in a unit of work a variety of instructional materials in order to meet individual differences in the group, provide the most possible stimuli to learning, and serve purposes comparable to the following, which were developed by an Indiana State Teachers College workshop:
    - a. Provide more direct concrete experiences.
    - b. Create greater interest; motivate learning.
    - c. Increase persistence in, or retention of, learning.
    - d. Bring illusions of reality from all parts of the world.
    - e. Provide a better informational background for thinking.
    - f. Produce clearer, better understanding.
    - g. Develop desirable attitudes.
    - h. Provide a means of reviewing, summarizing, and correlating knowledges.
    - i. Supplement and add variety and participative activity to learning.
    - j. Increase the speed of learning.[1]
2. Use criteria of evaluation similar to the following to determine the best of all materials available and appropriate for use at a particular grade level and in a given subject-matter area:
    - a. Is the material interesting?
    - b. Is it accurate?
    - c. Is the purpose clear?
    - d. Does it accomplish the purpose?
    - e. Is the purpose important or desirable?
    - f. Does the material stimulate self-activity?
    - g. Will it provide the basis for successful pupil accomplishments?
3. In accordance with some such principles as the following, integrate all instructional materials to produce the greatest amount of learning for the greatest number of pupils:
    - a. Prior to employing materials, learn as much as possible about them by using guides, evaluations, and actual previews.
    - b. Make the materials complement each other by being sufficiently different in content or treatment to justify their inclusion.

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[1] Reported in *The Audio-Visual Program*, Bulletin No. [illegible], State Department of Public Instruction of Indiana.

5. *Attractive light-control facilities in the classroom increase the effectiveness of audio-visual materials.*

   a. Choose the best available.
   b. Use materials at the point in instruction which will produce the best results: as an introduction, as supplementary or enriching material, as a culminating activity, or as a review or test.

6. Make sure that physical conditions during use are satisfactory: place of use, screen size and placement, light control, ventilation, etc.

   a. Classroom use of all types of audio-visual materials is highly recommended, unless inadequate physical conditions make preferable the use of a central room provided for this purpose.
   b. Every classroom should be provided with a screen easily and quickly made ready for use, but capable of being stored and protected from dust and dirt when not in use. Screens mounted on the wall or behind movable chalkboards or bulletin boards serve well. Although screens mounted on tripods are safety hazards, consume space, and cost more per unit, they do permit flexibility in

placement, a frequently desirable quality in small-group viewing situations and in classrooms where light cannot be adequately controlled.

Size of screen is governed by distance to the nearest and most distant seats in the audience. According to generally accepted standards, no observer should be closer than twice the width of the screen or farther than six times the width. Close seating results in eye fatigue from trying to observe the whole screen for details, whereas more distant seating results in eye strain and missing the small details. The size of screen needed for any situation can be determined quickly by applying the above standards. In normal classrooms, a screen 60" x 60" will be adequate.[7]

c. All rooms where projected visual materials will be used as a part of regular classroom activity, should be provided with facilities for quick and easy darkening. The advantages and disadvantages of the most common methods of light control—drapes, shades, full-closure venetian blinds, or adjustable louvres and jalousies—are discussed in two bulletins.[8] The use of various types of "daylight" screens permits, at best, a semi-adequate projection in classrooms which cannot be adequately darkened for regular projection. In general, "daylight" screens have proved unsatisfactory for opaque projection.

d. Adequate ventilation becomes a problem during the projection of audio-visual materials. Many teachers darken their classrooms by pulling down opaque shades or venetian blinds, only to find themselves also forced to close most of the windows to avoid flapping blinds or shades that produce light leaks. In schools without air conditioning, inadequate movement of air results in uncomfortable conditions. Is it surprising that students become inattentive?

It is important, therefore, that some means be provided during projection to insure an adequate movement of air in classrooms without air conditioning. Certain types of louvres which let in air but not light are satisfactory. If drapes are hung some distance from windows, floor, and ceiling, no further ventilating devices may be needed.

6. In-service educational programs may well explore, analyze, and evaluate audio-visual materials and ways of using them, as follows:
   a. Observation of classroom use of audio-visual materials.
   b. Discussion of ways to improve instruction through use of audio-visual materials.
   c.

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[7] For information on types of screens, and data on determining size, see Bulletin 441, Indiana State Department of Public Instruction, pp. 55-58.

[8] Department of Audio-Visual Instruction, National Education Association, Planning Schools for Use of Audio-Visual Materials, No. 1, Classrooms; Light Control and the Classroom Use of Projected Pictures.

    c. Discussion of audio-visual problems and progress by outside leaders.
    d. Demonstrations on making and using audio-visual materials.
    e. Experimentation and evaluation.
6. Pupils should be "ready" for the materials. Pupil readiness may be developed in at least three ways:
    a. Pupil evaluation and selection of audio-visual materials on the basis of interests and needs in a given unit of work.
    b. Formulation of points to look for, questions to be answered, and possible new problems and questions, arising from materials.
    c. Plan for relating new ideas, attitudes, information, and skills to previously acquired ideas, attitudes, information, and skills.

TOWARD ACTUAL USE

Having considered the nature of the pupils in terms of the demands of society, and the nature of audio-visual materials in relation to sources of information about them, we are ready to consider some actual ways in which materials have been or may be used to confront pupils with various stimuli to learning and to develop skill in designing educational experiences. The next chapter will discuss the resource unit as a step in organizing instructional materials for use.

REFERENCES

CATALOGS AND INDEXES

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Educational Film Guide, 1953, and 1954-58 *Supplement*, H. W. Wilson Company, 950-972 University Ave., New York 52, New York. $7.50, or $12.50 with supplements issued semi-annually. Lists films alphabetically and then according to the Dewey Decimal classification. Film date, grade level, brief description of contents, critical comments, and purchase sources are given in the classified section. Directory of producers and distributors is handy list for addresses. Also contains order numbers for 4,000 Library of Congress Cards and 3,000 EFLA Evaluation Cards. Notations are given of film reviews appearing in *Educational Screen* and *Audio-Visual Guide*, *Saturday Review*, and *Film News*, and high ratings from a group of evaluators are indicated by asterisks.

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Educators Guide to Free Slide Films, annual, [illegible] Edition, Educators Progress Service, Randolph, Wisconsin. [illegible]. The [illegible] edition contains a classified list of free filmstrips, with descriptions. Indexed by subject and title.

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EFLA Service Supplements, selected film lists prepared by various members of EFLA. [illegible]. Educational Film Library Association, [illegible] E. [illegible] Street, New York [illegible], New York.

Elementary Teachers Guide to Free Curriculum Materials, [illegible] Edition, Educators Progress Service, Randolph, Wisconsin, annual. [illegible]. The [illegible] edition lists and describes [illegible] titles of free maps, bulletins, pamphlets, exhibits, and charts for elementary classrooms.

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Peabody College for Teachers, *Free and Inexpensive Learning Materials*, George Peabody College for Teachers, Nashville, Tennessee, annual, [illegible] pp. [illegible]. Lists over [illegible] pamphlets, maps, exhibits, charts, posters, and pictures costing less than [illegible] which have been examined and evaluated at Peabody as valuable for use in schools. Titles are arranged under subject headings. A valuable source for teachers, librarians, and audio-visual directors.

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Listenables and Lookables, 61 LaFayette Avenue, East Orange, New Jersey. Published three times a month except June, July, and August. Designed to "bring information about radio and video programs to students, teachers, and public service organizations," the publication lists programs of the major networks and gives some program background and editorial comment.

Look and Listen, National Association for Better Radio and Television, 882 Victoria Avenue, Los Angeles 5, California. Published quarterly. A guide to better radio and television programs. Includes some standards for evaluation.

NAEB Journal, National Association of Educational Broadcasters, 14 Gregory Hall, Urbana, Illinois. Monthly, October through May. $4.00. News and evaluations of educational radio and television programs. (Formerly the *Journal of the AERT*.)

Ohio State University, *The News Letter*, Bureau of Educational Research, The Ohio State University, Columbus, Ohio. Monthly. Free. Contains a discussion on a major topic and many news items in the audio-visual field. Emphasizes the philosophy of audio-visual education. Mentions new materials and publications available. Edited by Edgar Dale.

Scholastic Teacher, 33 West 42nd St., New York 36, New York. Monthly, September through May. $3.00. Section on audio-visual and other teaching materials for English and social studies classes.

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TEXTBOOKS AND HANDBOOKS[1]

Association for Supervision and Curriculum Development of NEA, *Creating a Good Environment for Learning*, 1954 Yearbook of the Association for Supervision and Curriculum Development, National Education Association, Washington, D. C., 1954, 307 pp.

Bridges for Ideas. A series of six handbooks dealing with (1) [illegible] charts, (2) bulletin boards, (3) felt boards, (4) lettering techniques, (5) using the community, and (6) models available from Visual Instruction Bureau, University of Texas, Austin 12, Texas, for $1.00 per single copy.

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[1] These references provide lists of materials for [illegible] groups and [illegible]. They have the disadvantage of not being as current as catalogs and magazines, but the advantage of suggested materials selected by experts in [illegible].

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Levenson, William B., and Stasheff, Edward, *Teaching Through Radio and Television*, Rinehart and Co., Inc., New York, 1952, rev. ed., 560 pp.

Sands, Lester B., *Audio-Visual Procedures in Teaching*, Ronald Press, New York, 1956, 670 pp.

Wittich, Walter Arno, and Schuller, Charles Francis, *Audio-Visual Materials: Their Nature and Use*, Harper and Brothers, New York, 1957, 570 pp.

ASSOCIATIONS AND ORGANIZATIONS

(1) Audio-Visual Instruction Directors (AVID) of Indiana, organized in 1947 and affiliated with DAVI. AVID is the state professional organization for audio-visual directors, supervisors, coordinators, and instructors. Its basic purpose is to advance education through the more efficient selecting, utilizing, evaluating, administering, and financing of audio-visual instructional materials. AVID meets once each year, has published a *Handbook for the Audio-Visual Program*, and [illegible] offers a scholarship to a teacher in Indiana for studying audio-visual education, and offers assistance in audio-visual education to other professional organizations. Membership is open to members of the Indiana State Teachers Association who spend one or more periods per day directing or coordinating audio-visual programs or teaching audio-visual courses. An associate membership is open to Indiana dealers, distributors, and producers of audio-visual materials. Members receive copies of AVID's publications and mailings. Apply for membership to [illegible], secretary-treasurer, [illegible] Vocational High School.

(2) Department of Audio-Visual Instruction of the National Education Association (DAVI), 1201 16th St., N. W., Washington 6, D. C.

Membership includes any pamphlets or other publications issued by the Department. A national conference is held yearly and a correspondence information service maintained to help on matters related to the field of audio-visual education.

(3) Educational Film Library Association (EFLA), 345 East 46th Street, New York 17, New York. Emily Jones, Executive Secretary. A non-profit educational association, open to membership by any organization or individual concerned with audio-visual education. Its purpose is to encourage and improve the production, distribution, and utilizing of educational films by such activities as the publication of bulletins and pamphlets, evaluation of current films by member organizations, which are published on 3" x 5" cards, holding conferences, cooperating with other national agencies such as the Film Council of America and the U. S. National Commission for UNESCO, and undertaking special projects requested by the membership.

(4) The National Association of Educational Broadcasters (NAEB), 14 Gregory Hall, Urbana, Illinois. A nation-wide organization of practically all the educational stations of the nation. Operates a tape recording project which duplicates radio broadcasts and mails them out for a very small fee to its member stations.

(5) National Audio-Visual Association (NAVA), Fairfax, Virginia, is the national trade association of sellers and makers of audio-visual materials and equipment. Membership in the Association includes about 400 audio-visual dealers and 100 manufacturers, film producers, and other producers of audio-visual products. The Association works for better business ethics in the audio-visual field and for better service to audio-visual users through a program of dealer training, publications, conventions, and meetings. In order to be eligible for membership in the Association, a dealer must have been in the audio-visual business on a full-time basis for a period of at least one year. He must maintain stocks of audio-visual items and must have franchises from recognized audio-visual manufacturers or producers. Upon request, the Association will provide interested persons with a list of NAVA members in Indiana.

FILMS FOR TEACHERS

Audio-Visual Materials in Teaching. 10 min. sd. color or b & w. Coronet. Shows the place and value of audio-visual materials in the educative process.

Better Bulletin Boards. 10 min. sd. color or b & w. Indiana University Audio-Visual Center. Presents many kinds of bulletin boards, how they are constructed and how they may be used.

Flannelgraph. 10 min. sd. color. University of Minnesota. Indicates, through an actual lesson, what a flannelgraph is, how it can be made, and its possibilities as a teaching aid.

Handmade Materials for Projection. 18 min. sd. color. Indiana University Audio-Visual Center. Demonstrates various methods of preparing materials to be used in different types of still projectors: slides, sizes 3¼" x 4", and 2" x 2".

High Contrast Photography for Instruction. 22 min, sd, color. Indiana University Audio-Visual Center. Demonstrates the use of high contrast photography for the preparation of 2" x 2" and 3¼" x 4" negative and positive slides, transparencies and overlays for overhead projectors.

Lettering Instructional Materials. 22 min, sd, color. Indiana University Audio-Visual Center. Shows many types of letters and lettering devices which may be used to produce effective printing on such materials as charts, posters, and bulletin boards.

Passe Partout Framing. 12 min, sd, b & w. Indiana University Audio-Visual Center. Shows how to mount materials for display by making a sandwich of backing, material, mat, and glass or plastic.

Photographic Slides for Instruction. 11 min, sd, color. Indiana University Audio-Visual Center. Shows the preparation and use of photographic slides in instruction.

Tape Recording for Instruction. 15 min, sd, b & w. Indiana University Audio-Visual Center. Shows the use of tape recorders in teaching situations and presents some of the different models of recorders.

FILMSTRIPS FOR TEACHERS

Bringing the Community to the Classroom. 48 frames, b & w. Wayne University. Shows the many ways in which one teacher calls upon the community to teach a specific unit of work.

How to Make and Use the Felt Board. 50 frames, color. Ohio State University. Art work and illustrations explain this teaching aid for in-service teachers.

Improving the Use of the Chalkboard. 44 frames, b & w. Ohio State University. Photographs and art work illustrate ways for teachers in service to improve their use of chalkboards.

Increasing the Effectiveness of Teaching With Tape Recording. Sound, b & w. Minnesota Mining and Mfg. Disc recording: 33⅓ and 78 rpm. Shows various uses of tape recording by teachers. Free booklet: "Tape recording in the classroom" is also available.

Introducing Filmstrips. 38 frames, b & w. National Film Board of Canada. Cartoons are used to explain what a filmstrip is, what it can do, and how it should be used.

Making Field Trips Effective. 40 frames, b & w. Wayne University. Presents effective techniques for planning field trips and shows their purpose and value.

Making Teaching Effective. 45 frames, b & w. Ohio State University. Shows the curriculum atmosphere in which audio-visual materials are most effective.

Teacher Utilizes a Motion Picture Film. 48 frames, b & w. W. R. Fulton. Includes the preparation before presentation, the physical arrangements, the presentation, and the "follow thru" after the film is shown.

Teaching With a Filmstrip. 50 frames, b & w. Society for Visual Education. Shows the main steps of a lesson in which a filmstrip is used. Includes the purpose of the lesson, selection of materials, the lesson plan, the presentation, follow-up activities, and testing procedures.

2

RESOURCE UNITS

[illegible] Centralized collections of audio-visual materials are useful in teaching

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

CHAPTER III

THE RESOURCE UNIT IN TEACHING

Winston Churchill has said, "First we shape our buildings and then our buildings shape us." Similarly one might say of the resource unit in teaching, "From resource units, teachers plan units of work which shape boys and girls."

The resource unit, a comprehensive compilation of resources organized around a unifying problem or topic, is intended for the teacher's use in pre-planning a unit of work. Neither exact content nor procedures to be used in the classroom are dictated by the resource unit. It merely provides the raw materials from which teaching units can be developed.

It is not the purpose of this chapter to deal with the psychological, philosophical, and methodological considerations which face elementary teachers in planning a unit of work: defining objectives, determining materials and experiences, and planning for evaluation and improvement. Rather, the purpose is to point out the development of the "resource unit" as one phase of evolving the complete unit of work.

STEPS IN DEVELOPING A RESOURCE UNIT

Organizing the Resource Unit. Every unit of work presupposes a resource unit which provides information concerning materials and experiences relevant to the objectives of the unit.

The first step in compiling such a resource unit is to decide upon its format and organization. File cards, loose-leaf notebooks, and manila folders in cardboard boxes are among the formats used by teachers. It is generally agreed that 5" x 8" file cards are the most effective method for building resource units. They permit addition or deletion at any point of the unit without destroying the sequence of the other items in the unit. A card file for such information might well be standard equipment in every classroom, and the building of such an information file one of the professional responsibilities of every teacher. Many teachers, however, may prefer to use notebooks in keeping their units much as has been done in the two sample units in Chapter IV.

The precise system is not so important as the inclusion of complete and accurate information. The following card, based on the Library of Congress card for the film, suggests a form used by some teachers and found satisfactory. Additional information may be added as needed.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Evaluating Materials. The third and final step in building a resource unit is evaluation of the materials to eliminate those which are ineffective. Teachers generally prefer their own evaluations rather than depending on those prepared by others. Criteria such as those suggested in Chapter II should be applied. Evaluation forms, such as those reproduced in Appendix C, should be helpful. It is also suggested that cards for materials to be deleted from a resource unit not be completely destroyed. Inasmuch as they do represent available materials, the cards should be retained. In order to avoid using the material again, however, the card might have a bold X on the front side. The comments which indicate the reason for dropping the material should be noted.

IMPORTANCE OF RESOURCE UNITS

Since pupils learn whatever they do, it is important that they engage in worthwhile activities. The committee urges teachers to recognize the fact that the environment surrounding pupils is one of the chief factors in determining pupil activities and that boys and girls will grow in proportion to the richness and value of the stimuli present in their educational environment. It is, therefore, important that all teachers know about, select, and use the best possible educational materials.

Teachers are sometimes accused of serving a monotonous diet of "predigested pabulum." This indictment means that they have done all critical analysis, all selection, and all integration of materials and experiences without involving the students in the process. Such a procedure, of course, is not desirable. In a society such as ours, students must be involved in identifying questions, seeking meanings and answers, and making syntheses. Integrated educational experiences which lead up to [illegible] are [illegible] and necessary. Resource units reflecting the cooperative efforts of pupils and teachers play no small role in providing such learning experiences.

Teachers who have not developed resource units previously may need examples to follow. The two given in Chapter IV should be helpful for beginners. The first has been compiled for teachers developing a unit of work on the study of time at the second-grade level. The second has been compiled for use in a unit of work on the study of iron and steel at the intermediate level. Other examples of resource units may be found in the publications of the Indiana State Department of Public Instruction, including a sixth-grade unit on the weather,[1] and several units on language arts from grades one through eleven.[2]

SEQUENTIAL ORDER OF UNITS

The following two outlines, the first in social studies and the second in health and science will illustrate successful sequential order for these two areas of instruction.

---

[1] State Department of Public Instruction of Indiana, The Audio-Visual Program. Bulletin No. [illegible], pp. [illegible].

[2] State Department of Public Instruction of Indiana, Course Guide for the English Language Arts, [illegible], pp. [illegible].

Social Studies. The sequence of units in the outline for social studies moves out from the child's immediate environment toward places, events, and people increasingly removed in time and space. Many school systems have worked out a plan suitable to their environments, using the following outline as a point of departure. Many suggestions have also been offered in good curriculum texts, state bulletins, and professional magazines and publications.

Social Studies Outline

Kindergarten
- School Helpers
- Holidays
- Toys
- Neighborhood Friends

Grade 1
- The Family
- Our School
- Neighborhood Helpers

Grade 2
- Community Helpers
- Life in the Community
- Life on the Farm
- The Greenhouse
- The Dairy
- The Bakery
- The Library

Grade 3
- Our Food
- Our Clothing
- A Modern Community
- A Contrasting Community
- American Indians

Grade 4
- Life in a Temperate Region
- Life in a Mountainous Region
- Life in the Far North
- Life in a Hot Dry Region
- Life in a Region with Contrast

Grade 5
- Period of Discovery
- The Colonial Period
- The Westward Movement
- Pioneer Life
- Indiana Today

Grade 6
- Our Latin-American Neighbors
- Alaska
- Canada
- Aeronautics
- Communication
- Islands of the Pacific

Grade 7
- England and the British Empire
- France, Italy, Germany, USSR
- The Scandinavian Countries
- Africa, Asia Minor, Asia

Grade 8
- Growth of Democracy

Spiral Outline

Health and Science. Many modern elementary schools are using the spiral system of grade placement in health education and in science, which means that instead of beginning one subject such as "safety" in one grade and completing it before going on to "mental health" in the next grade, learning takes place in both areas on all grade levels. This plan is used in the new *Guide for Health Education in Indiana Schools*, Bulletin No. 219, Indiana State Department of Public Instruction.

Grades 1-6
- Personal Hygiene
- Nutrition

Healthful Home and School Environment
Communicable Diseases
Mental Health
Family Life Education
Alcohol, Tobacco, Narcotics, Drugs, Stimulants
Safety

The spiral plan is also used in the area of science. Authorities in this field have found that all science experiences fall into three or four areas of learning. For example, the schools of one city have made these areas: Living Things, Energy and Machines, and Earth and Universe.[1]

Conclusion. In the final analysis, creative imagination and knowledge on the part of the teacher are required in developing the best possible instruction for boys and girls in the schools of Indiana. The source units, important as they are, are only one aspect of the educational process.

REFERENCES

Cincinnati Guide for Social Studies, Cincinnati, Ohio.

Guide for Health Education in Indiana Schools, Bulletin No. [illegible], Indiana State Department of Public Instruction, Indianapolis, [illegible].

Mackintosh, Helen K., coordinator, *Schools at Work in 48 States*, Bulletin No. [illegible], U. S. Office of Education, Washington, D. C., [illegible].

Ragan, William B., *Modern Elementary Curriculum*, Dryden Press, Inc., New York, [illegible].

Expanding Experiences in the Elementary School, Bulletin No. [illegible], Indiana State Department of Public Instruction, Indianapolis, [illegible].

A Good Start in School, Bulletin No. [illegible], Indiana State Department of Public Instruction, Indianapolis, [illegible].

Teacher Guide for Science in the Elementary Schools, Hammond, Indiana, [illegible].

Teacher Guide for Social Studies in the Elementary Schools of Santa Clara County, Santa Clara County Schools, San Jose, Cal., [illegible].

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[1] Hammond Public Schools, *Science Guide for the Elementary School*.

CHAPTER IV

EXAMPLES OF RESOURCE UNITS

PRIMARY GRADE RESOURCE UNIT: A STUDY OF TIME

I. Broad Objectives:

A. To provide experiences which will guide primary pupils in developing an awareness of the rhythm of time in their daily living.

B. To acquaint primary pupils with some of the ways people have measured and recorded time in the past.

C. To develop an appreciation of the importance of scientific research [illegible] in bringing about progress that has changed the time element in daily living.

D. To stimulate primary pupils to observe, investigate, and evaluate the situations and activities about them which are concerned with time.

II. Introduction:

[illegible]

III. Possible Approaches:

[illegible]

IV. Pupil and Teacher Planning:

A. Activities:

1. Discussing the clock:

a. Writing the schedule for the school day.

b. Reading stories about the measure of time.

c. Associating events of the day as they occur with the time shown by the clock.

d. Discussing appropriate hours for children's meals, bedtime, time to get up, and favorite television and radio programs.

e. Developing an awareness of the need for using time well and for being punctual.

   - f. Estimating the amount of time which various activities consume
   - g. Observing the real clock and discovering that the minute and hour hands move around the numbers at the same time and that both hands are needed to tell time
   - h. Observing that the hour hand moves from one number to the next while the minute hand goes all the way around the clock
   - i. Learning that the short hand points to the hours and the long hand points to the minutes
   - j. Learning to tell time to the half-hour
   - k. Acquiring some knowledge of time zones from experience with radio and television broadcasts and time changes encountered while traveling

3. Discovering the calendar
   - a. Learning (1) the number and names of the months, (2) the number and names of the days of the week, (3) the number of school days in a school year, (4) the number of seasons, and (5) the number of the year
   - b. Checking the date of the day
   - c. Marking coming events and counting intervening days
   - d. Finding dates of important holidays
   - e. Finding one's own birth date
   - f. Discussing the relation of time to progress in transportation and communication (i.e., airplanes, [illegible] engines, television, [illegible] [illegible] [illegible] telephones, telegrams, and cable grams)
   - g. Discussing the relation of time to the invention of labor-saving devices now used in daily living (i.e., electric washers and dryers, electric mixers, electric fans, electric cooking appliances, toasters, electric [illegible], electric sewing machines, and garage doors)

4. Writing about time
   - a. Simple stories about clocks
   - b. Stories about the seasons
   - c. Original rhymes
   - d. Invitations for activities culminating a program
   - e. Making illustrated charts and booklets
   - f. Making a vocabulary chart

5. Sharing information and experiences about time
   - a. Discussing famous clocks, such as Big Ben, Strasbourg Cathedral Clock, and [illegible] City Clock
   - b. Discussing early time devices
   - c. Discussing modern clocks and watches
   - d. Sharing songs, poems, and stories about time

6. Dramatizing time
   - a. Acting out activities in the clock shop: buying, selling, and repairing
   - b. Using clock terms

3. [illegible]
   a. [illegible]
   b. [illegible]
4. [illegible]
   a. [illegible]
   b. [illegible]

V. [illegible]
   A. [illegible]
   B. [illegible]
   C. [illegible]
   D. [illegible]

VI. [illegible]
   A. [illegible]
   B. [illegible]
   C. [illegible]
   D. [illegible]

REFERENCES

BOOKS AND ARTICLES

For Teachers

[illegible], "Time and Timekeeping," *Grade Teacher* [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
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Write: [illegible]
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[illegible]
[illegible]

Paper Making and Its Importance to Our Daily Lives
[illegible]
Write: [illegible] Paper Company
[illegible]
[illegible], Pennsylvania

Films

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

Filmstrips

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

Recordings

[illegible], Educational Record Sales, New York, 78 r.p.m.
[illegible], Children's Reading Service, Brooklyn, 78 r.p.m.

INTERMEDIATE GRADE RESOURCE UNIT—A STUDY OF IRON AND STEEL

I. Broad Objectives
  A. To see how steel is made and used.
  B. To see how ore is mined.
  C. To see how ore is smelted in a blast furnace.

7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]
11. [illegible]
12. [illegible]

II. Introduction

[illegible]

III. Possible Approaches

[illegible]

IV. Pupil and Teacher Planning

A. Generalizations to be taught and learned

1. [illegible]
2. About one third of all the people in the United States are in the Northeast.
3. Most of the people in the Northeast live in cities and [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible] Lake Superior and the building of the "Soo" Canal help to explain why large numbers of

[illegible]

[illegible]

[illegible]

[illegible]

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]
11. [illegible]
12. [illegible]

[illegible]

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]

c. [illegible] arithmetic through discussion of graphs, [illegible], and distances.

d. Study electro-magnets, electric furnaces, and processes involved in making steel.

V. Culminating Activities

a. Have class discuss and evaluate the information gathered and the pictures, graphs, stories, [illegible], and other creative activities completed while studying about iron and steel.

b. Prepare bulletin boards and displays, show films and filmstrips, exhibit reports to [illegible], present dramatizations, make charts and display [illegible] pictures to bring the unit to culmination.

VI. Evaluation

a. Are children aware of the processes involved in the manufacture and use of steel?

b. Do they understand how steel has contributed to our ways of life? How it gives beauty, safety, and comfort to today's world?

c. Have they learned their responsibility and obligation toward the future in the conservation of the iron resources?

d. Have their skills been improved and better integrated through this unit experience?

REFERENCES

BOOKS AND ARTICLES

For Teachers

[illegible], [illegible], *Iron and Steel Today*, 2nd Edition, Oxford University Press, New York, [illegible].

[illegible], [illegible], *Iron Horse—A Century of American Ore and Steel*, Macmillan Company, New York, [illegible].

"Men and Iron," *Grade Teacher* [illegible], November, [illegible].

"[illegible] Miracle Mile," *Coronet*, May [illegible].

"Steel: Master of Them All," *National Geographic*, April, [illegible].

[illegible] Project, Pennsylvania, *Story of Iron and Steel*, [illegible], [illegible].

For Pupils

"[illegible] and Superior," *Young America*, March, [illegible].

"[illegible] of U. S. Steel Industry," *Young America*, September, [illegible].

"The Great Lakes," *Current Events*, October, [illegible].

"Great Lakes Are Brimming Over," *Geographic School Bulletin*, May 1, [illegible].

"Great Lakes Link the States That Supply Our Steel," *Young America*, May, [illegible].

"Lake Shipping Is on Again," *Young America*, April [illegible], [illegible].

Palmer, J., "Making Steel: A Cartoon," *Instructor* [illegible], February, [illegible].

"Rail Transport," *Young America*, May, [illegible].

"Steel—Backbone of Modern Industry," *Young Citizen*, February, 1950.
"Steel: Our Versatile Backbone," *Senior Scholastic*, March 15, 1951.
"Steel Holds the Spotlight," *Current Events*, January, 1950.
"Pittsburgh in the Heart of America," *Young Citizen*, October, 1950.
"We Build On Our Backbone," *Current Events*, January, 1951.
"The World Gets Good News About Iron," *My Weekly Reader*, May, 1951.

○ ○ ○

Encyclopedias: for pertinent information and illustrations see: *iron and steel; alloy steel; Bessemer steel; structural engineering; open-hearth steel process; high speed steel; manganese steel; molybdenum steel; nickel steel; nickel steel; chromium steel; tungsten steel; vanadium steel; nitrogen hardening; stainless steel; steels; alloys; crucible steel; steels; iron and steel;* and other specific headings.

MATERIAL FREE AND/OR INEXPENSIVE

From Iron Ore to Finished Product: A Chart.
Write: General Motors Corporation
Department of Public Relations
Detroit 2, Michigan

From Iron to Finished Steel: Charts.
Number 1—Sources
Number 2—Distribution
Number 3—Artistic Uses
Number 4—Improvements
Write: The nearest Coca-Cola Bottling Company

How Steel Is Made.
This 36-page book takes you inside the vast, complex steel industry, with the story of modern steelmaking told in the non-technical language of everyday life.
Write: Inland Steel Company
Public Relations Department
38 West Monroe Street
Chicago 3, Illinois

How Steel Is Made (Notebook Flow Chart).
Free diagrammatic chart with brief text describing the steelmaking process from raw materials to finished products.
Write: U. S. Steel Corporation
Public Relations Department
71 Broadway
New York 6, New York

Iron and Steel at Work.
A reprint of a teaching unit about the uses of iron and steel. Each packet includes a teacher's leaflet, a wall chart, and 30 pupil folders.
Write: American Iron and Steel Institute
150 East 42nd Street
New York 17, New York

Major Steps in Steelmaking.
A chart showing the major steps in steelmaking in an integrated steel plant.
Write: American Iron and Steel Institute
150 East 42nd Street
New York 17, New York

Making Iron and Steel.
A set of pictures illustrating the steelmaking process from iron ore to the finished products.
Write: U. S. Steel Corporation
Public Relations Department
71 Broadway
New York 6, New York

Men and Iron.
This is a reprint of a teaching unit prepared for use in fifth grade classes and explains the importance of iron.
Write: American Iron and Steel Institute
150 East 42nd Street
New York 17, New York

Men and Steel.
This is a reprint of a teaching unit designed for use in fifth grade classes and presents the story of the transformation of iron into steel.
Write: American Iron and Steel Institute
150 East 42nd Street
New York 17, New York

Our America—Steel: A Modern Essential.
Contains a teacher's guide, student booklets, wall chart, and pictures.
Write: Local Coca-Cola Bottling Company

Picture Story of Steel.
This booklet depicts some of the more important steps in steel production.
Write: American Iron and Steel Institute
150 East 42nd Street
New York 17, New York

Stainless Steels and Their Uses.
Stainless Steel, A Modern Aid to the Food Industry.
Stainless Steel Helps To Produce Fine Textiles.
These are stainless steel booklets. Use of stainless steel in industry is emphasized.
Write: Union Carbide and Carbon Corporation
Electro Metallurgical Division
30 East 42nd Street
New York 17, New York

Steel From Mine to You.
This is a folding chart giving brief descriptions of open hearth, electric, Bessemer, and blast furnaces.
Write: American Iron and Steel Institute
150 East 42nd Street
New York 17, New York

Steel Information Booklets. (Please order by number.)

Number 2—Basic Facts About U. S. Steel.
Number 5—Joe—The Genie of Steel.
Number 6—Return of Joe—The Genie of Steel.
Number 8—Steel Making in America.
Number 10—The Story of Wire from Iron Ore to Finished Product.

Write: U. S. Steel Corporation
Public Relations Department
71 Broadway
New York 6, New York

Steel Serves the Farmer.

The story is told of the development of the labor-saving and crop-saving implements which farmers use today.

Write: American Iron and Steel Institute
150 East 42nd Street
New York 17, New York

Story of Granite City Steel.

This booklet tells the story of the manufacture of steel.

Write: Mr. Bill C. Lovin
Granite City Steel Company
20 Madison Avenue
Granite City, Illinois

Films

Great Lakes—Highways of Commerce. 22 min, sd, color (EBF)
Iron Ore Mining. 13 min, sd, b & w or color (Academy Films)
Iron—Product of the Blast Furnace. 11 min, sd, color (Academy Films)
Lake Carrier. 9 min, sd, b & w (United World)
Ore Mines to Oil Fields. 30 min, sd, color (Youngstown Sheet and Tube Company)
Steel. 11 min, sd, b & w (Almanac Films)

Filmstrips

How We Get Our Iron and Steel (YAF; McGraw-Hill) 38 frames b & w silent
Iron and Steel (Eyegate) 23 frames color silent
Iron Ore (Stanley Bowmar Company) 55 frames b & w silent
Mineral Resources (Curriculum Filmstrips, Inc.) 31 frames color silent
Our Dependence On Coal and Iron Workers (Curriculum Filmstrips, Inc.) 26 frames color silent
Story of Iron and Steel (Yale University Press) 40 frames b & w silent

3

AUDIO-VISUAL MATERIALS IN SUBJECT AREAS

7. Audio-visual materials compel attention.

CHAPTER V

SOCIAL STUDIES

INTRODUCTION

Many teachers of social studies are aware of the need to make the story of man more real for their children. Their acceptance of recorded materials—films, filmstrips, recordings—is evidenced by the hundreds of new educational titles appearing each year. Time and space will not permit even approximate listing of available materials of the social studies in all areas and on all grade levels. In addition to recorded materials for seeing and hearing, many new devices and techniques are coming into use to help children create their own aids to learning in both individual and group activities. Every available art and all possible graphic materials are being pressed into use by pupils and teachers to produce murals, maps, bulletin boards, dioramas, mobiles, stabiles, and many more devices to help children enjoy a more realistic approach to social studies.

Specific examples of classroom use of audio-visual materials will suggest their possibilities for expanding the social understandings of children.

HOME, FAMILY, AND COMMUNITY LIFE

As children leave home and family to live in the school atmosphere, where they feel the influence of the families and homes of other children, it becomes important to them to know about the home and family. One teacher used as an art-social studies project the making of clay figures of members of the family. Figures were arranged for display in groupings which showed each member's responsibilities. Another class, which included a child from a foreign country, spent time studying the language of this child's country. This activity naturally led to a first-grade socio-dramatic project based on family customs in both lands.

Still other teachers of young children make use of additional materials to bring meaning to family and home. There are a number of good films which aid children in understanding their own homelife and that of others.[1] Skills in simple research were introduced when the children brought photographs of various members of the family and arranged them in a bulletin-board display to depict family responsibility. Another class displayed photographs or paper pictures of rooms in their homes to illustrate uses of various rooms and to establish the prototype of a good home.

The exuberance of children in their first school year, as well as their natural growth, soon leads them to readiness for reading and for exploring the structure of other institutions. In one second-grade class, a unit on the school was enriched by taking a walk through and around the building to look for devices that protected the children. Moreover, the classroom itself served as an example of community living.

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[1] Among others, *Appreciating Our Parents*, *Dining Together*, *Family of India*, *Family Teamwork*, *Good Neighbor Family*, *Japanese Fishing Village*, and *You and Your Family*.

> The child participates in community life day by day in the classroom. Planning together, sharing, performing the numerous little daily chores around the classroom, such as caring for the plants, boards, and keeping own person and desk neat, as well as the jobs connected directly with our living units . . . are all parts of this living together in a community. For example, we had a messenger who carried messages to other rooms; we had a housekeeper, a board washer, committees for bulletin boards, newspapers, or other activities. Most of these duties have their counterparts in the larger life of the community. . . . Our City Council and the Board of Works, The Chamber of Commerce and other service organizations are grown up editions of our school room planning groups. Our aim, then, in the classroom is to make it an example of wholesome living and learning together.

Maps constructed by pupils, of home and school neighborhoods, are often used to develop the meaning and use of maps. Many teachers help their children lay out a model representing the local community. On a cloth plat of city squares and streets, they place wooden houses, a church, a school building, business buildings, and a factory. Some teachers also precede their study by some film which shows a community, first from a school bus, and then from a helicopter, afterward, by animation, transferring it to a map.[2] Following such a film showing, one teacher used aerial photos of the children's own community to develop better understanding of the relationship between the size of real objects and their representation on maps.

Visits to such community helpers as policemen, and firemen, introduce children to the people who serve them in their city and town life. Films may be used before or after such trips to direct attention to important ideas or to clarify questions.[3] Then, too, field trips and visits to the classroom by people engaged in community service can be related to some special observance such as Fire Prevention Week.

A trip to a farm, for example, offers many opportunities for developing concepts about the farmer as a community helper. His role in supplying food, clothing, and even building materials, makes him an important person in the eyes of children. Following a field trip, one class was shown a film of life at a sheep ranch as a means of expanding the group's conception of farm and ranch life.[4] Discussion after the film-showing compared community life on a large sheep ranch to life in a small community in areas where small farms are situated close together. Weather and climatic conditions in the

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[2] *Geography of Your Community.*

[3] *City Fire Fighters; Letter to Grandmother; Our City Streets; Our Community; The Policemen; Stores in Our Community;* and *What Our Town Does for Us.*

[4] *Desert Sheep Ranch.*

West were compared to those in the children's own region. There are a number of other films and filmstrips which teachers should find useful in connection with a trip to the farm.[5]

In some schools, field trips are not permitted. One teacher solved this problem through "committee field trips" which children took on their own time.

> I selected, using as criteria for selection the pupils' interests and their abilities, three children to make field trips on Saturdays. These children would then come back on Mondays and tell of their experiences. Most of these children had cameras and would take pictures as they progressed through the steps of the trip. These pictures were shown and explained as the children made their reports.

A variety of activities will in this way bring real life situations to the classroom and create needs for basic skills. In one classroom, a grocery store served as the springboard for a social studies unit in which children studied sources of various food items. Some excellent films and filmstrips can be used to provide additional background. Many items of food were brought from home with the story of their origin. Such products strongly reflected the racial and cultural backgrounds of the children. This social studies unit gave occasion, in turn, to integrating new skills in spelling, reading, writing, and arithmetic.

A variety of materials close at hand are the stock-in-trade of the primary teachers. When one teacher was asked about her unusual collection of odds and ends, she remarked, "That's just what it is—a what-is-it. Upon occasion it can be a grocery, post office, library, puppet stage, school, or fire house. Boxes, sticks, cardboard, scotch tape, paste, and paint change it constantly under the children's hands into their latest desire." This same teacher motivated the children into a clever role-playing drama when she proposed that they show what happened when a fire in their what-is-it building was reported. While one child imitated a siren, a group of children arranged themselves to simulate a fire truck. One of the children served as the driver. Two other children became the doors to the fire station and opened as the fire truck moved across the floor to put out the conflagration. Another group of children, playing the role of squad car, moved to preserve order. Such is life in the mind of the exploring second-grade child!

One teacher described her objectives for community-helper units in words which also seem to fit the activities just described.

> Our objectives in the community-helper units are to promote the understanding that all people in a community depend on one another and that many people work to make possible happy, healthful living and to develop attitudes of accepting responsibility for group conduct and the realization of interdependence between the family, school, and community.

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[5] *Life on a Cattle Ranch; Life on a Sheep Ranch; One Day on the Farm; Pony Farm; Shepherd and His Sheep; Truck Farm; Wheat Farmer.* Filmstrips: *Agriculture; The Farm; Machines on the Farm; Muddy Raindrops; Planning for Better Farm Family Living.*

COMMUNICATION AND TRANSPORTATION

Units of study dealing with communication and transportation are often the concerns of primary children. Some children have learned the proper use of the telephone through a unit[6] comprising a film, a filmstrip, a set of dial telephones and directories, and a booklet.[7] In addition to aiding language development, this unit can be employed as an introduction to indexing, house numbering, and street naming. Other activities involving the telephone are described in Chapter VII under the section entitled "Speaking."[8]

Many schools find "pen pal" correspondence fruitful. One class also found a "tape pal" exchange very profitable as a means of exchanging culture through questions and spoken essays on the lives of the children of each country. With two or three such tape exchange clubs in existence today, this use of the tape recorder promises much for boys and girls of Indiana schools. Not only is it exciting to exchange with "tape pals" of other lands but with those in Indiana itself—from city to town to farm community—from city to city—from north to south.

Field trips add much to children's understanding of communication and transportation. While showing a group of primary children through a local railroad yard, a freight agent demonstrated the use of communicative devices: signals, flares, and the telegraph system. A transportation unit inspired another school system to develop a field trip to a nearby city. Children were taken in cars to the train station. Here they bought tickets and boarded the train while the sponsors drove to the city station to meet them, escort them through the train station, and finally take them to visit the airport. At the end of the day, the children were taken home in cars.

WAYS OF LIVING, PAST AND PRESENT

In the intermediate grades, children show a natural, awakening interest in early peoples. Ways of living, construction of homes, and the conduct of daily activities can also be included in studies of early peoples. For one class, desire to learn about different methods of lighting homes resulted from a talk by a visiting county health nurse. After she had tested the children's eyes, she discussed with them the three things necessary for reading, and to illustrate her point, she showed them a large chart of an eye, a book, and a lamp. The children became interested in the way homes of long ago were lighted. They constructed a fireplace, collected several types of kerosene lamps, read a story about making candles, and engaged in a project of dipping some candles of their own.

One class constructed both a model pioneer village and an Indian village. Development of their models provided activities for further

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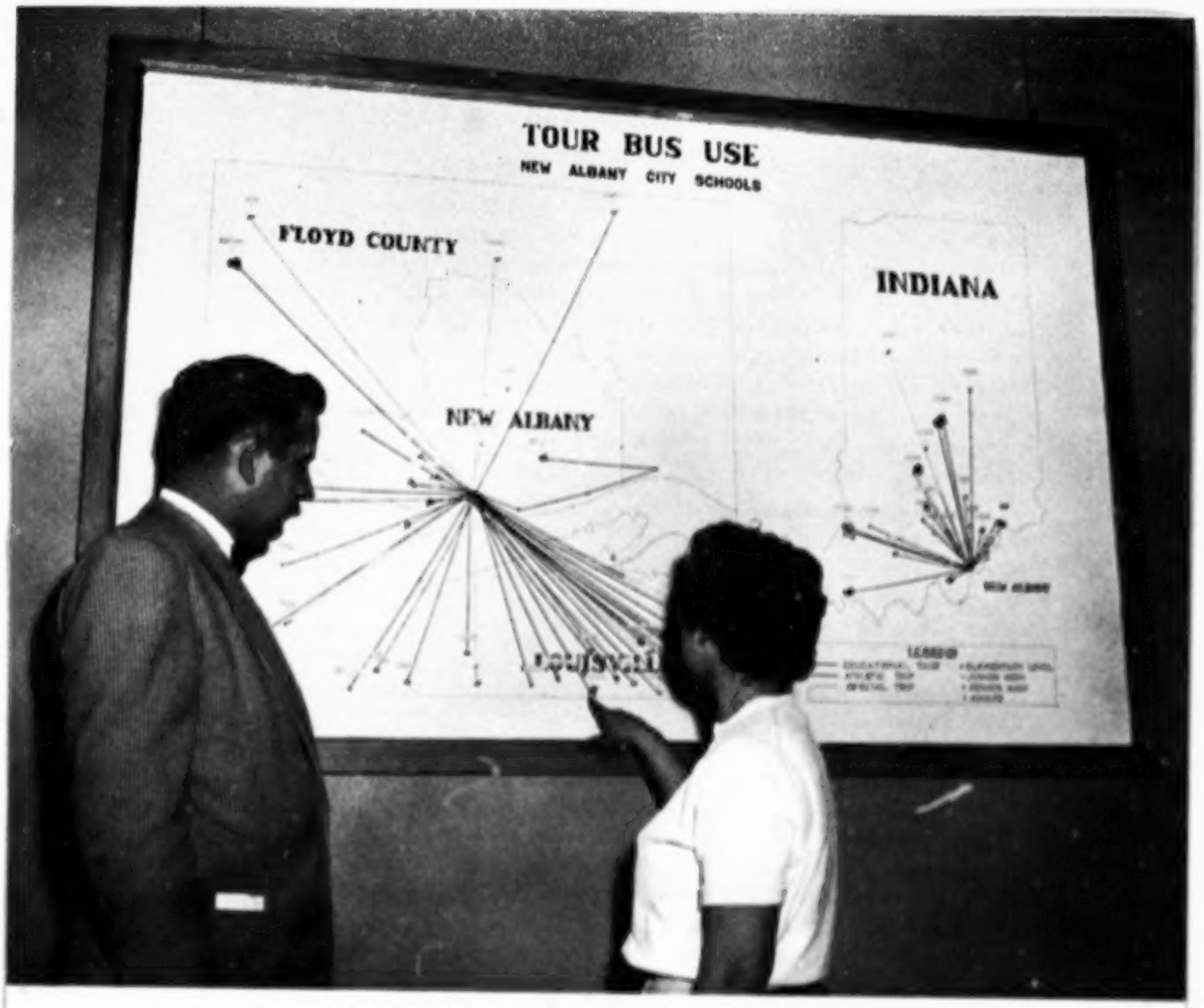
[6] *Adventures in Telezonia.*

[7] *How to Use the Telephone.*

[8] See p. 76.



8. *Field trip schedules facilitate use of school tour bus.*

study of early family patterns, religions, and economics. Films were used to bring the past into the classroom.[9]

One teacher introduced the story of our nation's early beginnings by showing a film about pioneer life. After the film-showing, suggestions by the children led to innumerable classroom activities related to living in early times. Corn was parched, butter was churned, and candles were dipped. One child brought pictures of colonial Williamsburg for a bulletin-board display; others demonstrated forms of entertainment, such as dancing "reels" and "folk" dances; still others turned their artistic talents to depicting in a mural the class activities carried on in the study. Seeing, listening, handling, and doing—films, recordings, concrete objects, and direct experiences—all these helped this group of fifth-grade children to understand the way of life in pioneer days.

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[9] Films: *Candle Making; Flatboatmen of the Frontier; Indian Family of Long Ago; Kentucky Pioneers; Little Indian Weaver; Pioneer Community of the Midwest; Pioneer Home; Pioneers of the Plains.* Filmstrips: *American Colonies; Drums Along the Mohawk; Frontier Life in Early America; Westward Migration.*

Social studies for ten- and eleven-year-olds often introduce intensive study of local and state life. One school took advantage of its heterogeneous population in the local community to study the foods served in Chinese, Greek, Italian, and French restaurants. Menus and individual visits enabled the children to extend their tolerance of strange foods. Another class participated in a "tasting party." Various dishes that were regular fare in the children's homes were brought to class. As the children tasted each dish, the child who brought this food answered questions about it. The tastes of boys and girls at this age are normally quite narrow. Through the "tasting party," these children were introduced, in a social situation, to a variety of foods.

In one class, a study of local communities resulted in a field trip and a map depicting the historic lore of that section of the city which was near the school. Suggested picture-taking encouraged sixteen pupils to bring their cameras on the tour. A number of snapshots were taken and used in the follow-up activities.

Enlarging their interests to a study of the state, one group made a large map on which they pasted cutouts of natural resources. They made their map with the opaque projector by projecting a copy of a small map on a large piece of paper and tracing around the outline. Another group developed a similar map on which were indicated by flags the different products of the state. Some schools sponsored class trips to spots of historical interest. One eighth-grade teacher and her class, on a field trip to southern Indiana, visited Vincennes, Lincoln State Park, Wyandotte Cave, Corydon, and Brown County State Park.

With the help of their parents, pupils in another school built a display of Indiana's past, including artifacts, family pieces, and costumes. This activity culminated in a mother-child tea. The parents told stories concerning articles in the display, and the children presented poems, stories, arts, crafts, and dramatizations which they had developed while studying the unit. Language arts skills were integrated with a social studies unit when one class wrote to civic groups for source materials to use in their study of the racial-cultural backgrounds of various parts of the state.

In the social studies area many types of audio-visual materials can also be used to teach historical concepts. Often these may be related to the movement of peoples westward and to the establishment of communities in undeveloped areas of the United States. A student reports on effective use of a felt board to review the growth of our country from the original thirteen colonies to a nation of 49 states.

> By way of review, the teacher brought in a felt board and began to introduce different multi-colored pieces that represented the territories the United States had acquired in its growth. He started out with the original thirteen colonies and worked from that point. In a way it was like a game, with the pupils telling the teacher what to put up next to complete the puzzle. . . . By using the felt board, the pupils could see as well as hear how a great nation was formed from a loose federation of thirteen colonies on the Atlantic coast.

9. Motion pictures bring the world into the classroom.

OUR WIDENING HORIZONS

The interdependence of peoples is emphasized over and over again as children become interested in state, nation, and world. In one class, geographical influences on Mexican life were brought out through a relief map made by pupils. By means of this map, children realized the extreme differences in various parts of Mexico, and understood more clearly the many problems of the people. Another class developed a world-trade map to show how the Americas fit into the pattern of world trade. After making the map, the group found further value in another trade map.[19]

The interdependence of peoples of the world can often be brought out by paying attention to world-wide happenings. One class clipped from the newspaper, a small map showing the long, alternative trade route around the Cape of Good Hope which ships had to take as a result of the Suez crisis in 1956. The comparative mileages of the two routes were noticed. This small map was enlarged by using an opaque projector. Political divisions of the nations involved were added: small plastic ships were pasted on the map with some going through the Suez Canal and others going around the Cape of Good Hope. Besides being encouraged to read newspapers and magazines, the children better understood the world as a community of nations and began to realize that actions of individual countries may seriously affect others throughout the world.

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[19] *The World Makes an Automobile.*

Units dealing with world trade can have a point of departure in many articles which we need or use from other countries. By developing a display of various products made from olive oil, one class reached a better understanding of the economy of those countries supplying this oil. The same class also became interested in the role of fats in the lives of people. Charts were made to show various kinds of fats upon which different countries depend, the general shortage of fat in the world, and the part now played by the United Nations in this aspect of world economy.

One class, during a unit on Korea and Japan, studied a display of items which the teacher had purchased overseas. Interest in this display extended beyond the classroom to the entire school and resulted in presentation of the exhibit to the PTA. One school, after enjoying for a year the presence of an exchange-teacher from England, also profited from the experiences of its own teacher, upon her return. The pupils used the 2" x 2" slides taken by the teacher in England to record the life of boys and girls there, to visualize some of their reports, and to enjoy the beauties of the English countryside.

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TEACHING KITS

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MAPS

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CHAPTER VI

SCIENCE

INTRODUCTION

The world is an interesting place for the child; he is continually asking the question "why." This curiosity about the world opens a natural avenue for introducing the child to science and scientific procedure.

Audio-visual materials are essential to a successful elementary science program. Demonstrations of experiments involve the use of real objects and actual materials. Special filming techniques, such as slow-motion photography, time-lapse photography, and cinephotomicrography, make the motion picture invaluable in teaching certain scientific facts. Through the use of models, the child is provided with workable examples of scientific principles. Recordings and radio and television programs enrich the study of science with stories of men and women who have contributed to our knowledge of science and its application to everyday living.

DEVELOPING AN UNDERSTANDING OF LIVING THINGS

The child is naturally curious about living things—their movements, their growth, their manner of life. Observe the fascination of a small youngster as he watches a woolly caterpillar inch its way up a leaf stem or caresses a baby animal which he holds in his arms. Quickly his attention shifts to all sorts of questions. Will it always look like this? What does it eat? How big will it get?

Activities in the school or classroom should stimulate the child's desire to study living things. One group of children became interested in plants through a schoolyard improvement program. A field trip to a greenhouse provided the opportunity to see plants in various stages of growth and to talk with people who work closely with plants. This visit stimulated questions about the growth of plants, their method of obtaining food, and the function of roots, stems, and leaves. With the teacher's help, observations and questions were recorded on a chart. The children began to experiment to find answers to their questions.

> Corn seeds were soaked overnight and then planted in damp sand. After they were well sprouted, the small plants were removed from the sand. A half-inch of cotton, of the same dimensions as glass plates, was dampened and placed on one of the glass plates. The rooted corn seeds were placed on the cotton. Another glass plate was used against it, and the two plates were clamped into a ring stand, roots up and stem down. This formed a pocket garden. In a short time the roots were growing down and the stems up. The plates were again turned with the roots up and the stem end down. Each time

> this was done, the roots would turn and grow down and the stems up.

Through this experiment, the children were introduced to the term *gravity* and their understanding of the word was furthered by relating the law of gravity to common experiences, such as "falling down."

Some teachers report successful use of filmstrips in a unit on plants.[1] One filmstrip shows the structure of flowers, pollen travel and fertilization of ovules, structure of seeds and fruits, and plant families.[2] A second filmstrip provides laboratory and real-life demonstrations of green plants as a source of food, photosynthesis, and plant structure.[3] A third gives the complete crop cycle from preparation of soil through planting, care, and transplanting, and shows a group of youngsters making use of garden plots provided in one of the city parks.[4] A fourth shows Jane as she plants some seeds and watches the tiny plants grow and develop flowers and fruits.[5] A fifth demonstrates the function and structure of seeds, production of seeds by plants, and ways in which seeds travel.[6]

Other experiments with plants provided the children with answers to their questions about the way plants obtain food, the importance of sun and light to plant growth, and the proper care of plants. A film was shown which pictures the steps in the life cycle of the pea plant and explains the function of roots, stems, leaves, flowers, fruit, and seed.[7] To summarize this study of plants, each child planted a nasturtium seed, cared for the plant, and observed and recorded information about its growth. On Mother's Day, each youngster had a blossoming plant to present as a gift which represented his accomplishments in a school activity.

Through a study of plants, the teacher of this class had provided each child with an experience that involved scientific method in solving a problem. The children had observed and questioned, had experimented and noted results, and had applied their knowledge to a project which resulted in personal success and satisfaction. Children learn problem-solving by experience when they participate personally and directly in a "find out" kind of activity.

Schools having access to radio broadcasts have discovered an in-school radio series which provides science experiences for first and second-grade children.[8] The series is valuable and widely used. Under the leadership of the "radio" teacher, experiments are performed in the classroom by children who use materials prepared in advance by the classroom teacher. In addition to giving meaning to many things observed by the primary child, the broadcasts direct his attention to the radio, one of the great scientific tools for learning more about science.

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[1] See footnotes 2-7 below, and references at the end of this chapter.

[2] *Flowers, Fruits, and Seeds.*

[3] *Plant Factories.*

[4] *Plants at School.*

[5] *Plants Grow.*

[6] *Seeds and Seed Travel.*

[7] *Life of a Plant.*

[8] *Let's Find Out Series*, produced by Station KSLH, St. Louis and distributed to educational stations through the NAEB network.

In another classroom, a milkweed stalk that was brought for display on the science table stimulated the children to a study of the Monarch butterfly.

> One day David brought a milkweed stalk with several pods. We always talk about these items and have the children tell where they found them, what they think their use may be, and we stress the fact that everything on earth has a definite use.

The class were shown a film to help them learn about the milkweed plant.[9] Their observations were recorded in this group story.

> The mother Monarch butterfly lays her eggs on the milkweed plant.
> The Monarch caterpillar eats the milkweed leaves.
> The caterpillar has a shell which he "squirms out of."
> The caterpillar gradually becomes a butterfly.
> The Monarch is a really beautiful butterfly.

One of the children brought a collection of butterflies. Using the Monarch butterfly in this collection as a guide, the children drew pictures of the Monarch, mounted their drawings and their group story, and made a panel for their room. Further study provided them with information about the Monarch's migratory habits. The mechanism of milkweed seeds which spreads them about, was also studied. The teacher summarized the value of this study in these words:

> As we studied, we saw in a little way the truth of our first statement that everything on the earth has a purpose. We learned that the milkweed plant and pod provide food and home for the Monarch butterfly.

Another teacher used the subject of "social insects" as a means of developing understanding of living things. Pictures of insects displayed on a bulletin board created an interest in the subject. Information was gathered by taking field trips to observe insects in their natural habitat and by assembling collections of insects. Two films added to the fund of information about the life and work of insects and introduced the concept of the "life cycle."[10] To further the understanding of the life cycle, a filmstrip was used.[11] Individual frames that showed the egg, larva, pupa, and adult stages were discussed at length. Those frames on which pupils had questions were repeated and explained. To summarize this study, the children made charts of the homes, the various stages of the life cycle, and other aspects of the life of such insects as the ant.

When studying bees, another teacher took her children to visit an apiary; a hive of bees was also brought to the classroom.

> We secured a hive of bees and fastened it outside the window. The side next to the window was glass . . . It was there from November until the end of school in May. Everyday one of the children mentioned something about our bees.

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[9] *Monarch Butterfly.*
[10] *The Honeymaker; Ants.*
[11] *Life Cycle of the Monarch Butterfly.*

Children in the elementary grades can be introduced to the comparative sizes of living things. In the unit on plant growth, words, such as *smaller* and *larger*, were made meaningful as the size of one plant was compared with that of another. Bringing a microscope into the classroom can show that some plants and animals are too small to be seen "with the naked eye." A number of science films use the technique of cinephotomicrography to show minute plants and animals and to compare the size of these minute organisms with things within the child's range of experience.

In a unit about plant and animal life, sixth-grade children made collections of insects, leaves, rocks, and animal pictures. As a culminating activity, a film was shown. In it, many big game animals and myriads of smaller animals and birds were pictured in their natural haunts.[12] The land and its capacity to produce food for wild life was related to the need for keeping wild life populations in balance with the productive capacity of the land.

> Before the film was shown, the class discussed what they should expect to see in the film. The various species of animal life, their natural habitats and means of protection, and different kinds of trees, flowers, and other plants were included in the discussion. After the film had been viewed, there was more discussion concerning the different birds and animals of wild life and why our country has set aside tracts of land for national forests. Since so many children wished to express personally what had impressed them most in the film, it was decided that each should write a short story telling what he had enjoyed or found most interesting.

Story writing became the means by which this sixth-grade class reported observation and information gained from this film. Similar methods of presenting information, such as making charts and giving oral reports, also serve to integrate science activities with the language arts program as well as giving children firsthand experience in reporting and recording their findings, which is one of the most important aspects of solving a problem by scientific methods.

DEVELOPING AN UNDERSTANDING OF THE EARTH AND SKY

Many questions asked by a child concern the earth and its relation to other bodies in the universe. Before school age, firsthand experiences have provided the child with some knowledge of the physical elements of the earth—the soil, the water, and the air. His searching questions offer many opportunities to direct his thinking toward various interesting classroom activities which will increase his scientific knowledge and his "can-find-out-ability." For example, through the study of plants and plant growth, described in the preceding section, the teacher helped each child to find out about the relationship of soil, water, and sunlight to the growth of living things. A simple experiment with flax seeds showed that plants need sun and light to grow and that they will adjust the direction of their growth to fulfill this need.

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[12] *Realm of the Wild.*

> Flax seed was planted on a damp sponge. When placed away from the light in a darkened place, these plants would lean over in their eagerness to get sunshine. The leaves of our potted plants were turned to face the room each morning. By evening, most of the leaves would be turned in the opposite direction toward the window to face the sunlight.

Also demonstrated by this experiment was the use of food stored in the seed and the need of the new plant for additional food to complete its growth. The flax seedlings which were not supplied with additional nourishment died when the food stored in the seed was exhausted.

Experiments of this kind can be extended to help children see the effects of different kinds of soils on plant growth. One primary teacher had children plant grass seed in three containers, each labeled to denote the kind of soil. The soil in one container was sandy; in the second, stony; and in the third, rich and suitable for growing the seeds. After observing the three containers, the children drew their own conclusion about the effect of different kinds of soil on the growth of grass.

At the primary level, collections of soil, sand, gravel, and rocks can help the child become aware of the materials that make up the earth's composition. In the upper grades, this study can be extended to learning about different kinds of rocks, their formation, and their uses.

In one sixth-grade classroom a piece of quartz used by the teacher as a paper weight caught the children's attention. They desired to know what kind of rock it was and where the teacher had found it. Other children brought their "pretty" rocks for display. The display grew to a collection, and the collection raised questions. Why do some rocks break easily? How are rocks formed? Why are some round and smooth while others have rough edges? The teacher selected a film to help the children answer their questions. In this film, a child's father helps a class identify rocks as sedimentary, igneous, and metamorphic. He also explains how each type is formed.[13] As a result of seeing the film, the children decided to classify the rocks in their own collection. They viewed the film a second time and consulted various printed materials. The second viewing of the film brought forth another question from the children. Could they, as the child in the film had done, have someone who knew a great deal about rocks help them with their classifying problems? With the teacher's assistance, a science teacher was invited to visit the classroom. He helped the children to complete their classification. They mounted small samples of each type of rock on heavy cardboard and labeled the samples by type. The study of rocks led to discussions about soil and its formation and to a unit on the conservation of natural resources.

In one upper-grade classroom, the construction of a model of the volcano *Popocatepetl* added interest to a social studies unit and resulted in an extensive study of volcanoes. The children fashioned the basic shape from newspapers and plaster of Paris. A small milk can was

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[13] *Rocks.*

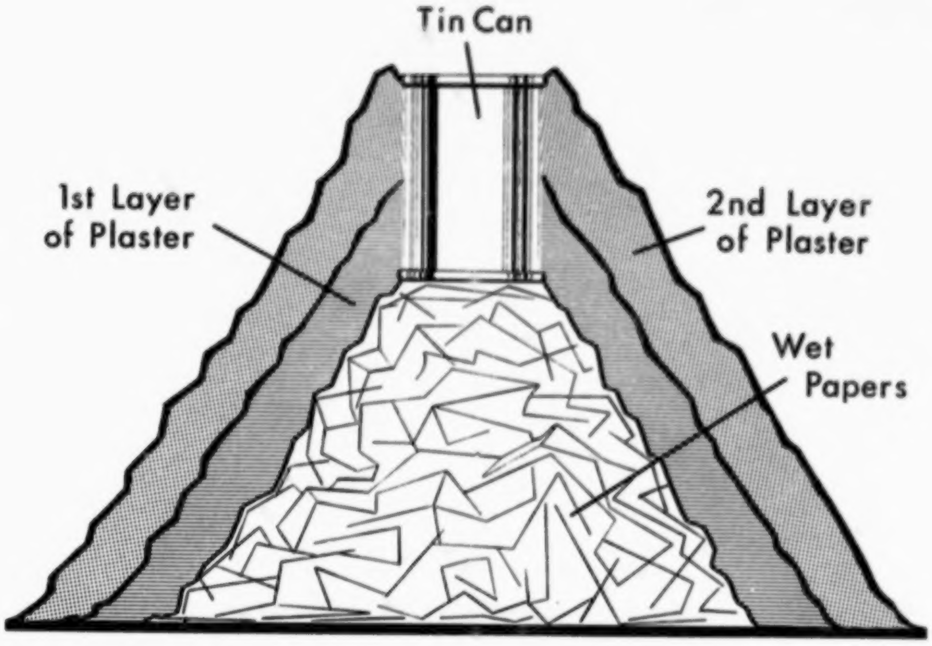

Fig. 2. Improvised Classroom Volcano.

inserted to form the crater opening. See Figure 2, p. 63. Ammonium bichromate was placed in the milk can and burned to simulate lava and ashes. From this demonstration, the class was motivated to study volcanoes. Pictures of well-known volcanoes were mounted and displayed. Diagrams were sketched to show how volcanoes develop. By using an opaque projector, the teacher enlarged a picture of *Popocatepetl* to make a drawing for a wall mural. When the project was completed, other classes were invited to see the work done in this study.

On the primary level, children can carry on simple experiments to acquaint them with things beyond the earth's surface. To help her class see the relationship between the sun and shadowed areas, one primary teacher took her pupils around the schoolyard to observe the shadows cast by the building, the playground apparatus, and the trees and shrubs. At nine o'clock the following morning, the class went outside again and drew lines on the ground around the shadows cast by some of their classmates. This activity was repeated at noon and again at two in the afternoon. From this experience, the children concluded that shadows are shorter at noon than in the morning and afternoon. This information was related to the position of the sun in the sky at different times of the day.

A teacher of a 5A-6B class helped to develop an understanding of earth and sky through a unit on weather. An especially selected film provided basic information about the water cycle and the meaning of the words *evaporation* and *condensation*.[14]

A "rain-making" demonstration followed the film showing. A pan, rimmed with cotton to represent clouds, was filled with ice cubes and suspended over a container in which water was heated. As the boiling water evaporated, the water vapor struck the bottom of the pan, which was chilled by the ice cubes; then it condensed and fell as moisture. To summarize this information, the children drew a diagram of the water cycle. The study of the weather was continued. A field trip to an airbase weather station acquainted the children with the work of the "weather man" and the many kinds of instruments used in weather prediction. In the classroom the children made a number of these weather instruments, such as the barometer. An opaque projector was used to trace cloud pictures from which a display was made of different types of clouds. The children kept a daily weather chart on which the temperatures throughout the school day were recorded at three-hour intervals. A supply of daily weather maps,[15] was used to record and compare daily temperature readings in various parts of the United States. The directions of certain ocean currents, such as the Gulf Stream, were charted in order to study the relationship of these ocean currents to our weather.

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[14] *What Makes Rain.*

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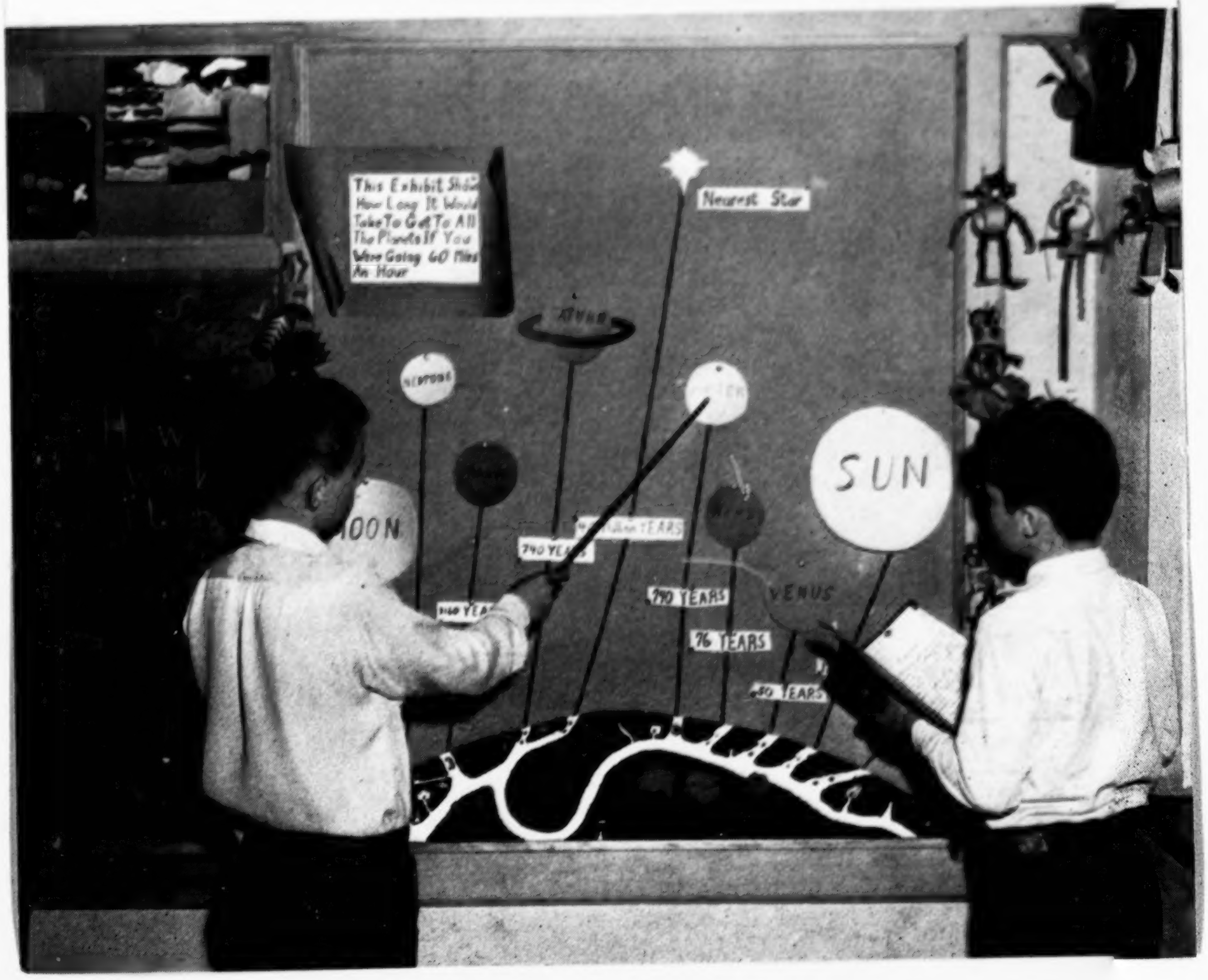
[15] United States Weather Bureau, Washington, D. C.

10. *Science exhibits provide pupils with many and varied informal study experiences.*


This Exhibit Show
How Long It Would
Take To Get To All
The Planets If You
Were Going 60 Miles
An Hour
Nearest Star
SUN
VENUS
OON
740 YEARS
YEARS
910 YEARS
76 YEARS
50 YEARS

11. *Pupil-experimentation helps to clarify scientific relationships.*

Many concepts of the solar system, such as movement, distance, and size, are difficult for children to comprehend. To help visualize the proper relationships and relative sizes of planets, one group of fourth-grade children, with the assistance of their teacher, developed a three-dimensional exhibit of the solar system.

> A cardboard grocery box was painted blue and papier-mâché planets were suspended by string from the top of the box. To add to the realism, each planet was fitted with clay moons that were attached by wire. The heavenly bodies nearest the sun were painted orange and yellow to show relative degrees of heat, while Pluto, with its coat of black paint, showed freezing temperatures. Clouds of cotton were given to Uranus. Comets and meteors completed the exhibit. Through this three-dimensional exhibit, the children were better able to grasp the idea of space and its vast nothingness.

The children also built a three-stage rocket ship from a paper towel tube, a space station from cardboard, and a clay model of the moon's surface which showed the jagged mountains and craters.

Papier-mâché models of the bodies in our solar system were also constructed by children in another classroom. These models were used in a dramatization to demonstrate the principles of "revolution" and "rotation," which the teacher felt to be most effective in helping children understand the causative relationship of the earth's movements to changes from day to night and to seasonal changes. A junior planetarium was used to identify the more important stars which are visible nightly and to learn about star groupings.[16] This small planetarium, constructed for use in both home and classroom, projects on the walls and ceiling of a darkened room the sky-by-night effect of a full-sized planetarium. The children also wrote and presented a play incorporating information learned about our solar system.[17] Several helpful films in this area are available.[18]

As a culminating study, the class also wrote and illustrated a story.[19] The teacher took slides of the pictures drawn from the story. Mobiles constructed of wooden cutout models of the heavenly bodies and of astronomical instruments were made and hung around the classroom. Both mobiles and slides were shown at the annual science fair.

Teachers of science show a wide and wise use of various audio-visual materials to give meaning to basic scientific facts: for example, demonstrations, diagrams, charts, maps, field trips, and projected materials.

> We will *agree that our success in teaching is greatly* enhanced if we are able to make ideas concrete and meaningful. We have all had the experience of asking someone to explain something to us and having him make a drawing that supplements his explanation so well that when he is finished we understand him perfectly. We have also had the experience of reading a book and finding ourselves lost in a wordy explanation only to come upon a sketch or drawing or map that illuminates the idea so that we can understand completely.[20]

DEVELOPING AN AWARENESS OF THE NEED FOR CONSERVATION

Many units of study in the elementary science program offer opportunities to introduce the subject of conservation. On the primary level, experiments with growing plants, such as those described in the two preceding sections, illustrate for children the dependence of plant life on suitable soil and water conditions. Through these experiments, the teacher can introduce a class to the need of conserving these two valuable resources. In the study of animals, the concept of the interdependence of living things can be related to conservation problems and practices. In the upper-elementary grades, a unit of study about soil, weather, or other factors in the constant change of the surface of the earth can provide information about the effect of these changes on living things and can include the study of the ways in which man is constantly striving to exercise control. On the upper-elementary level, however, units of study may be developed to deal directly with conservation problems and practices. Children need to recognize that conservation problems fall into two major categories: (1) the problem of utilizing with wisdom the expendable resources, such as oil, gas, and minerals; (2) the problem of developing planned programs to provide for renewal of such resources as water and soil.

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[16] The *Spitz Junior Planetarium*, available from Harmonic Reed Corporation, Rosemont, Pennsylvania.

[17] *A Dream Trip to Mars.*

[18] *Exploring the Night Sky; Solar System; Star Gazers; Sun's Family.*

[19] *Old Sol's Family.*

[20] Blough and Huggett, *Methods and Activities in Elementary-School Science*, p. 26.

One upper-elementary class was introduced to the subject of soil conservation by a film which showed in dramatic presentation how man had misused the soil and forests in the Mississippi River Valley and caused damaging floods, soil erosion, and other destruction of productivity.[31] The film also illustrated how man is striving through the work of TVA to control the situation and to improve living conditions along the Tennessee River. To relate problems presented in the film to local conservation needs, the teacher showed a set of colored slides that he himself had taken of soil erosion in the community. Field trips to neighboring conservation projects and visits with the county agent showed the children how conservation problems were being met on a local basis.

Another teacher used the same film to show the results of poor or nonexistent conservation practices and to stress the need for conservation. In contrast to the rather gloomy portrayal of soil destruction pictured in the first film, the class was also shown encouraging films.[32] These colored films presented facts about soil formation, the interdependence and the interrelationship of plants and animals to soil productivity, the importance of water and forests, and the effect of well-planned and well-organized conservation programs.

One eighth-grade teacher used a film in connection with a collection of fossils. The film presented information relative to the competitive struggle of plants and animals for survival, the extinction of animals that did not adapt to a changing environment, and the dependence of all plant and animal life on water, air, and soil.[33]

Each pupil's interest in the source of water supply for his own community can be a starting point for learning about problems of water conservation. In one such study, sixth-grade children and their teacher constructed a sand table model of the city's water supply. The model consisted of a mountain lake fashioned from blue construction paper, a stream with a cardboard dam across it, and rows of paper houses to represent the city located below the dam. Lengths of rubber tubing were used to simulate the larger pipes that carried water from the lake to the dam and from the dam to the city. Paper drinking straws served for pipes in the distribution system along the city streets. Because pipes from lake to dam had to go over a slight elevation, the principle of siphoning was introduced. Another experiment demonstrated how water pressure is obtained by storing water in high places; it was illustrated by the model, from which water flowed through pipes to the city.

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[31] *The River.*

[32] *Living Earth Series—Birth of the Soil; This Vital Earth; Arteries of Life; and Seeds of Destruction.*

[33] *Web of Life Series—The Strands Grow.*

In another classroom, a committee of pupils demonstrated how to remove impurities from water by filtration.

> The children borrowed three large glass filters from a high school science laboratory and suspended each filter in a ring on a stand. Large pebbles, followed by smaller ones, and finally a layer of sand were placed in each funnel. A glass was set under each funnel. Three samples of impure water were prepared. In one, some clay and dirt were added to make the water muddy. The second sample was colored by adding a few drops of blue coloring. Table salt was added to the third sample. Each water sample was poured into a separate funnel where the seepage of water through the sand and pebbles was watched. The filtered water in each glass was then examined for cloudiness, color, and flavor. A chart was prepared to show the results of the demonstration. The class concluded that only sand, dirt, and other materials that do not dissolve in water can be removed by the process of filtration.

A demonstration of distillation followed to show the children how blue coloring and salt could be removed from water by this process.

When children have information about the source of their community's water supply, a foundation is laid for developing wholesome attitudes toward the conservation of water. Further studies can lead to determining the adequacy of the local water supply in relation to growth of population. The plight of people in drought-stricken areas can be studied to help children understand what an adequate water supply means to life. A bulletin-board display of "dust-bowl" pictures was used by one teacher to stimulate interest in the problems of inadequate water supply in the western and southwestern regions of the United States. A committee of pupils took charge of the bulletin board and posted articles and current events dealing with these problems. Investigation of such a problem as this may lead into consideration of comparable local problems, such as, the need for conserving the air supply in large industrial areas and using more efficiently the fuels that produce energy for our industrial economy.

Any pictorial news magazine offers the teacher an array of visual materials in the form of pictures, charts, graphs, and diagrams showing the effects of "smog," comparing available supplies of oil, coal, and gas with yearly consumption, and depicting future plans for the use of atomic energy as a substitute for energy-giving fuels.[24] One eighth-grade teacher found that magazine articles accompanied by pictorial stories helped her class to realize the rate at which our country is using expendable resources. Such illustrated articles also stimulate interest in scientific development of newer and better methods for industrial operations.

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[24] See, for example, *Life* magazine.

A unit of study dealing with atomic energy and its use originated from recent newspaper stories and pictures of the atomic-powered submarine *The Nautilus*. The unit included research into the historical development of the atomic bomb and study of the lives and work of atomic scientists, such as Albert Einstein. Diagrams of different types of atoms helped the children to understand the composition of atoms. It also led to an understanding of the terms *atomic charge* and *atomic weight* and introduced concepts related to the composition of *compounds* and *elements*. Through diagrams, the teacher also showed how atomic energy can be transformed into electricity for production of heat, light, and power. To summarize the unit, a film was shown which used animation and live photography to explain the structure of the atom and the production of atomic energy. The film also pictured the explosion of an atomic bomb and other uses of atomic energy.[23]

Although in the elementary grades, instruction in atomic energy must be kept at a simple level consistent with the abilities of the group, the study of atomic energy, along with a study of conservation, is highly important as a means of developing constructive attitudes toward both aspects of present-day living.

DEVELOPING AN UNDERSTANDING OF CHEMICAL AND PHYSICAL FORCES

Every day, the child sees in his environment evidences of man's use of physical forces to accomplish the work of the world. The child's observations raise questions, and the teacher, by providing experiences that answer these questions, can lay a foundation of scientific knowledge upon which to develop understandings. The child's level of understanding, however, must be considered when planning units of study about chemical and physical forces. For example, in the primary grades, children can be introduced to the idea that different things make different kinds of sounds. Through simple listening activities, children can learn to identify familiar sounds around the classroom. Experiments with object materials, such as whistles, or musical instruments, can acquaint boys and girls with the differences in loud and soft sounds or in high and low tones. Field trips for the purpose of listening can be used to increase discrimination between man-made and natural sounds.

A group of intermediate-grade children discovered that sounds can be made in a variety of ways: namely, by striking, plucking, blowing, and bowing. Several children who played musical instruments volunteered at once to show how sounds are made in these ways. A violin, an accordian, a trumpet, a drum, a clarinet, and a piano, as well as several rhythm-band instruments borrowed from the primary grades, were used in the demonstrations that followed. From careful experimentation, some simple instruments resulted: a sonometer made by stretching wires of various thicknesses tight across a board; a xylophone made with blocks of hard wood of various lengths; and a set of pipes made of test tubes filled to varying heights with water. A film was used which dramatized through the use of animation how sounds are created by the different instruments of a very large orchestra.[26] These interesting discoveries were shared with others through the bulletin board. On an accompanying display table, observers were invited to produce sounds by striking the xylophone, blowing across the test tubes, and engaging in other similar activities.

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[23] *The Atom.*

Another teacher introduced the principle of sound waves and their relation to hearing in connection with a unit on the ear. The class was shown a motion picture on hearing.[27] This film showed not only the various parts of the ear and the ways in which they function but also explained the principle of sound and how sound waves reach the ear. A working model of the ear, borrowed from the biology teacher, gave pupils the opportunity to study the parts of the ear at close hand and to manipulate these parts in the way they move when sound reaches the ear. During class discussions, sound waves were likened to waves of water. The way sound waves travel outward from a central source was demonstrated by dropping a stone into a broad, shallow basin of water and by observing the series of concentric water waves that moved outward from the point of contact between stone and water. The way in which sound spreads out in all directions was also demonstrated by arranging the class so that the ears of pupils were at almost every conceivable angle from a ringing bell. Toward the end of the study, the film on hearing was shown again.

A unit of study about light which was planned by teacher and pupils was carried on in an elementary classroom to acquaint the children with some characteristics of light. In this unit, a number of objective materials were used in simple experiments. To demonstrate the principle that "light normally travels in a straight line," the children punched holes in the tops of cardboard strips. Using clay as a base, each strip was stuck into the clay so that the holes were in exact alignment. By placing a piece of black paper at one end of the line of cardboard strips and by shining a flashlight at the opposite end, the children could see on the black paper the pin-point of light that had travelled through the holes in the cardboard strips. When a child moved one of the strips upward, downward, or to the side so that it was out of alignment with the others, the pinpoint of light on the black paper disappeared. Through this experiment, the teacher could show that light waves did not bend upward, downward, or sideways but moved in a straight line through the holes in the cardboard to a projection point on the black paper. The children also constructed a cardboard "pin-hole" camera. Concave and convex lenses were brought to the classroom to show how lenses function and how the thickness and curvature of a lens affect its power of magnification. A Polaroid lens was also demonstrated, and its uses in everyday life were discussed. A simple experiment using a candle and a magnifying glass brought meaning to the term "focal point." The children viewed a lighted candle through a magnifying glass and adjusted the glass toward or away from the candle until proper focus was obtained. They also noted that the image of the candle in the magnifying glass was inverted. This discovery led to a discussion of the human eye, its parts, their function, and their care with respect to both health and safety.

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[26] *Science in the Orchestra.*
[27] *Ears and Hearing.*

Children show a natural curiosity about machines and the way they operate. The preschool child will often take his toys apart in an effort to see how they work. Early in the elementary science program, children can be introduced to the principles of simple machines and the way in which man has used these principles to help him in his everyday work. A unit consisting of levers, pulleys, an inclined plane, and a wheel and axle was used by one teacher in the lower-elementary grades to develop an understanding of the way in which these simple machines provide man with the mechanical means of increasing his own output of energy. The class was introduced to the principle of each of these simple machines by an appropriate motion picture in a series on machines.[28] One of the boys volunteered the use of his erector set, and the teacher assisted various groups of children to assemble three types of levers, a wheel and axle, and a pulley system.

When each group reported its experiences in construction of a particular simple machine to other class members, it gave practical examples of the use of that machine in home or industry. For example, children demonstrated the principle of levers by pulling a nail from a board and by cracking a walnut with a nutcracker. The teacher supplemented these demonstrations by showing 2" x 2" slides which he had made of machines too large to be brought into the classroom. During the children's demonstrations and the projection of the slides, the terms *fulcrum, force* and *resistance* were identified and explained for each type of machine and were demonstrated through the use of a model.

Later, this same class studied electrical conductors and non-conductors. A circuit consisting of a bell and a six-volt lantern battery was set up with the circuit incomplete at one point. At this point, the insulation was stripped from the ends of the wires, and the ends laid parallel and attached to a small piece of plywood. When the children laid a nail across the wires, the bell rang. Other materials were tried, and the children discovered that when such things as wood, glass, plastics, and paper were laid across the wires, the bell failed to ring. Through this experiment, the children deduced that some materials conducted electricity while others did not. The terms *conductor* and *non-conductor* became a meaningful part of the children's everyday vocabulary as they continued to test various materials and to list them on a chalk board under the headings *conductors* and *non-conductors.*

Electricity is considered a difficult concept for elementary children because of its abstractness and invisibility. To make a unit of magnetism more meaningful, one elementary teacher produced in class some paraffin-embedded patterns to make visible those invisible "lines of force" around a magnet which give it attracting and repelling power. Several pieces of heavy paper were dipped in melted paraffin. The paraffin fully covered at least one side of the paper. A horseshoe magnet was placed on a table and covered with heavy paper that had been dipped in paraffin. On the paraffined surface, which faced upward, iron filings were sprinkled lightly. The teacher then tapped the paper gently, whereupon the iron filings arranged themselves in the lines of force between the two magnetic poles of the magnet. The paper, with the filings in position, was then carefully lifted and held over heat, which melted the paraffin, permitting the filings to become embedded. The cooling and hardening of the paraffin made a permanent record of the pattern of the magnetic field of the magnet.

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[28] *Simple Machines Series—Inclined Plane; Levers; Pulleys;* and *Wheel and Axle.*

Other patterns were made to show the attracting and repelling forces in the poles of bar magnets placed end to end. After demonstrating these properties of magnets, the class placed the paraffin-embedded patterns on a bulletin board along with a display on the uses of magnets. As a culminating activity for the unit, the children were asked to watch a Saturday afternoon television program about magnets.[29] Other TV programs on science, which children can be encouraged to see as an out-of-school activity are listed in the references at the end of this chapter.

Another teacher used a similar technique to visualize magnetic lines of force. A card was placed over a magnet, and iron filings were sprinkled on the card. After the filings had assumed definite lines representing the field of force in that plane, clear plastic was carefully sprayed on the card in order to hold the filings in place. When the spray had dried, the card was turned over so that the blank side faced upward. On the under side of the card, a magnet was carefully registered under the "lines of force" patterns. The bar magnet was rotated a quarter turn so that it lay on an adjacent side, and then a second card was prepared in the same fashion as the first. The second card was split in half lengthwise through the center of the image of the magnet. These halves were cemented on either side of the first card at right angles to the card, thus giving a three-dimensional view of a magnetic field that is cut by two planes at right angles to each other. This demonstration helped pupils to understand that a magnetic field extends in all directions. The teacher also suggested that if heavy acetate were used instead of cards, the pattern would need to be made only on one side of the acetate, since its transparent quality would permit pupils to see the pattern from either side.

In a study of electricity, a class of sixth-grade pupils constructed a model electrical power plant from material supplied by the local light company. The class worked on the project in groups, and as each group constructed a specific section of the plant, individual members found reading necessary in order to gather information. When explaining the operation of specific parts of the power plant, the children had opportunities to use oral expression. Thus, reading and communication became essential parts of a science activity.

Models are also useful when studying the principles of steam and gasoline engines. Some elementary pupils "with special interests" will profit by examining an engine that has been taken apart and seeing where gasoline explodes to move the pistons up and down and how the pistons are fastened to the shaft to make it rotate.[30]

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[29] In the show, Mr. Wizard, in company with two children, explained many properties of magnets and their uses for electricity.

A simple experiment can demonstrate the meaning of the term "lighter than air." A gallon jug, two balloons, two rubber stoppers linked together by a small piece of glass tubing, some diluted sulphuric acid, and strips of zinc from old zinc and porcelain fruit jar lids were collected. The zinc strips were placed in the jug, after which sulfuric acid was poured over the zinc. When sufficient reaction had taken place so that the air in the jug was replaced by the hydrogen that was being given off by the reaction, one end of the stopper-tube arrangement was inserted into the opening of the jug. A balloon was attached to the other end, thus allowing the hydrogen to flow into the balloon and to inflate it. The mouth of the balloon was tied tightly with a long thread, anchored to a desk, and allowed to float above the desk. The second balloon was filled with air and laid on the desk. This experiment led to a comparison of the weight of air with the weight of hydrogen, and the principle of air displacement was explained as a factor in relation to the floating of the hydrogen-filled balloon.

In the example cited above, as in so many others cited in this section, meaning was brought to an abstract concept by the use of audio-visual materials. Whether the experience be firsthand, involving the use of real objects in experiments, or vicarious, as in the viewing of a sound motion picture, teachers are dependent upon instructional materials to make the elementary science program meaningful for children. Through the various units of study, problem-solving skills are also being developed.

Problem solving may be thought of as a general type of human behavior. It includes an assortment (not a pattern) of skills, attitudes, and habits. Among these are skills, such as asking meaningful questions, using indices effectively, reading with speed and comprehension, observing carefully, recognizing problem situations, and inventing and testing tentative solutions for them.

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[30] Blough and Huggett, *op. cit.*, p. 242.

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CHAPTER VII

LANGUAGE ARTS

INTRODUCTION

Listening, speaking, reading, and writing are the four major areas of the language arts. Skills in one area cannot be learned separately from those in another, since all are interrelated in their functions. In this chapter, however, the four areas of the language arts are treated separately for the purpose of emphasizing the development of certain skills in each area.

Language arts teachers generally agree that a pupil must have many realistic experiences, actual or vicarious, through which he learns to use language with confidence and skill, with purpose and meaning, and with appreciation of its quality and beauty. Since materials are one source of experience and determine the nature of the learning experience, all teachers are striving to use the best possible instructional materials. Audio-visual materials thus become an integral part of the elementary school curriculum, contributing significance and vitality to the entire language arts program. Through use of these materials, understanding is improved, concepts are clarified, retention is made more lasting, and intensity of impression is increased. Numerous films and filmstrips, along with projected transparent and opaque materials, as well as real materials in classroom and community, challenge the creative imagination of teacher and pupils.

SPEAKING

What one chooses to talk about is clearly more important than how he talks, but manner of talking is nevertheless vital. It is therefore the teacher's dual responsibility first to provide varied experiences for pupils to talk about and then to develop their ability to talk about these experiences.

Consideration must be given to the use of the telephone as a vitally important experience in communication for young people. Special skills in conversation, listening, and courtesy are involved. Children in primary grades enjoy play-telephoning. As many of these young children are already using the telephone frequently at home, they can be helped in school to learn simple, correct procedures. Older children profit from actual planned experiences in telephoning both at school and at home. Many schools have found value in the use of a telephone kit to develop telephone courtesy and the proper techniques of speaking and listening.[1]

Interpretation and appreciation of ideas are improved as children gain skill in oral expression. In planning a unit in American folklore for upper-grade children, several valuable experiences could contribute to understanding and appreciation. Wide reading in the field might lead to participation in a panel discussion, to preparation of a radio script, and to dramatization of different legends. A bulletin board based on various legendary characters might stimulate further activities in reading, writing, and speaking. Viewing a suitable film could serve as an excellent basis for a discussion which might involve the use of maps in tracing the journeys of a given character.[2] There is also an important place in a folklore unit for telling stories and anecdotes. Moreover, the entire class can participate in choral readings. Tape recordings can be made of several of these activities for the purpose of evaluating and improving speech skills. Then, too, pupils can investigate local folklore and improve their skill in the art of interviewing through talking with persons in the community. A textbook on literary appreciation can be used with older children to help develop reading skill.[3] Storytelling, too, has an important place here; it can be fostered through listening to excellent recordings from the world's greatest storytellers.

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[1] Cf. Ch. V, *Adventures in Telezonia.*

Certainly, teachers today must assume responsibility for helping children to interpret and discriminate among experiences with radio, motion pictures, and television. Classroom discussions must lead to the development of good taste and appreciation for the best programs. Teachers who wish to recommend good radio and television programs to pupils will find magazine listings of real help.[4] "Play broadcasting" and the presentation, if possible, of original programs through local radio and television stations are highly interesting ways of developing standards, as well as techniques, for programs of good quality.

LISTENING

Hearing is not listening any more than looking is reading. Listening is a consciously performed intellectual process involving specific habits and skills. The listening skills of a child can be improved through well-planned, carefully guided learning experiences. Here again, materials are all-important as the source of learning experiences.

The school is called upon to replace habits of passive and partial listening which children develop in their out-of-school lives as they hear and see radio, television, commercial motion pictures, and recordings of popular music, and have other face-to-face experiences not requiring full attention or thoughtful response. Teachers using radio programs—live or taped—will find many opportunities to emphasize listening skills. For pupils with low ability in reading, listening becomes especially important as an aid to reading. A teacher of a special room for educationally retarded children found that her pupils improved in habits of attention after she had begun using two radio series.[5] Radio series help to improve careful listening habits because children know that it is impossible to have statements repeated during a live radio program. They learn to listen carefully the first time. One kindergarten teacher who uses a radio series in rhythmics found her children most attentive because each wished to be sure that he knew what to do next in the class activity. Teachers interested in using radio programs should get schedules from educational radio stations in Indiana and from commercial stations carrying educational programs, and should check the national sources of audio-visual information listed in Chapter II.

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[2] *Johnny Appleseed—A Legend of Frontier Life.*

[3] *Literature Appreciation: How To Read Poetry.*

[4] Cf. "Listenables and Lookables," *Scholastic Teacher.*

[5] *Growing Up,* a WBAA, Purdue University program: Uncle Dan, an NAEB network program.

Young children in school, as well as many other children, must be helped to develop real sensitivity to the sound around them in their daylong experiences. This aural acuity and perception are essential to the development of more complex listening skills. Teachers can discuss with children sounds which they have heard in their homes, on the streets, in the stores, in the country, at the zoo, and in countless places where they have played and worked. In school, recordings can be used to develop sensitivity in little children to common environmental sounds.[6]

All children can have experiences in listening to excellent recordings of poetry, stories, drama, and music.[7] Oral reading of fine poetry by both teachers and children will develop listening skills as well as appreciation of rhythm and beauty of thought.

A tape recorder may be used on many occasions to help in evaluating skills and interpreting thought. A selected film can aid children in understanding the importance of "tuning out" irrelevant sounds in order to concentrate on important ones and to retain what is heard through visualizing ideas.[8] Recordings can be used to help children listen for specific points of information[9] or for a sequence of events.[10]

READING

Audio-visual experiences are likewise important in developing a well-balanced program of reading instructions at all levels of a child's growth. Especially during the pre-reading stage will carefully selected audio-visual experiences build reading interest and develop reading readiness. Much good kindergarten preparation is derived from excellent auditory and visual experiences. These should be continued in first grade and are especially important for children who did not attend kindergarten.

First-grade teachers need in their classrooms a wide variety of carefully selected concrete materials for building reading readiness: attractive books, toys, blocks, games, clay, wood, paints, musical instruments, a piano, record player, and cages for small animals. With these the teacher can provide important experiences. Experiences in using such materials may be supplemented by attractive books, by short trips to interesting places in the neighborhood, and by outdoor play of real social value. Many experiences in listening to stories and poems lead to posting brief tables and charts. Interesting bulletin boards are developed by using well-selected flat pictures with real interest and appeal for children.

Toward the end of their first-grade experiences, many children are reading poster captions, labels, and charts with ease. Bulletin boards related to on-going units of work take on new meaning; signs and book jackets pasted in the library corner are easily read; and for activities, children follow suggested directions posted near the numbers center. A first-grade teacher has described a center she devised for arranging and reading the day's news.

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[6] Cf. *Sounds Around Us.*

[7] Cf. *Young People's Records; Enrichment Records.*

[8] *Listen Well, Learn Well.*

[9] Cf. *Song of America* album.

[10] Cf. RCA Victor excerpts, as *Winnie the Pooh.*

> On an easel in the front of the room is a flashboard holder in which we have placed sentence cards telling the day's news. In the center of this holder is a calendar. Below are cards giving special news and the weather report. To the right of this are cards indicating birthdays and to the left are cards indicating special events for the month.

Much careful guidance in developing the essential skills involved in reading must, of course, have preceded this early independence in responding to the printed word. Recordings are effective in the development of phonetic skills.[11] Many teachers have found flannel boards helpful also in developing skills of word analysis. Children learn to match words and objects by placing on the flannel board two words which begin with the same letter or have the same letter combinations and by completing sentences which consist of familiar words.

One first-grade teacher recommends the use of several films to develop understanding of topics about which children are reading.[12] She also suggests the use of filmstrips dealing with city and country life, animals, and community helpers.[13]

A primary teacher has used the tape recorder to help children improve enunciation and pronunciation skills. She also considers a good filmstrip-reader series to be valuable in providing common reading experiences for the entire class.[14] Such a series provides strong visual motivation for word recognition and the associated reading of textual materials. In developing a unit of study about farm life, the above teacher has helped children to build a model farm in which accurate miniature models of farm machines have been used; the children have also developed a frieze depicting life on the farm.

Older children are able to read widely in subject-matter fields; yet much additional can be done to enrich their reading through audio-visual experiences which help to clarify concepts and enlarge vocabulary. Pictures from reference books or other sources may be projected by means of the opaque projector, thus providing a detailed image for discussion by the entire class. Field trips are also a valuable means of providing direct experiences. Examples of actual objects add meaning, as do objects in miniature and collections of sample products. Maps, charts, and statistical tables are important sources of information which children must be able to read intelligently.

One teacher used her tape recorder in connection with the oral reading program. At the beginning of the school year, each child's

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[11] For example, *Rhyme Time; Beginning Sounds.*

[12] *Farm Animals; Airplane Trip; Zoo Animals of Our Storybooks.*

[13] For example, the filmstrips accompanying the *Alice and Jerry Reading Series.*

[14] For example, *Encyclopaedia Britannica Films.*

12. *Pupils enjoy hearing themselves—at the same time that they learn.*

reading of a story was recorded. Each child later was permitted to hear the tape of his oral reading. At the end of the term, another tape was made. Then the child was permitted to compare both tapes. These recordings provided means by which the child's own estimate of his improvement could be made.

An important phase of instruction in reading is teaching how to study by reading. Children must learn to locate their own information, organize and evaluate ideas, read, and retain these ideas. In this connection, a teacher makes the helpful suggestion that there are many ways in which children can be motivated to read, to share, and to interpret their reading experiences. Creative dramatization and choral reading promote skill in interpretation as well as appreciation. Carefully designed bulletin boards can motivate further reading; and the construction of dioramas, puppets, and marionettes is an interesting way of helping children to express favorite scenes and characters. Many audio-visual experiences already mentioned in this discussion have an important place here.[13]

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[13] See the films [illegible] *Necklace* and *The Littlest Angel*; the filmstrip *When The Littlest Camel Knelt*.

WRITING

For children of all ages, good writing is stimulated by a wealth of experiences, both concrete and vicarious. Concepts, attitudes, and appreciations develop through use of interesting work and play materials, through many experiences with fine literature and good music, through original expression in many art media, through showing the written expressions of the children, and through dramatic interpretation. Contacts with interesting people, too, are important. The theatre productions for children, their story hours at the public library, and the pageants and programs developed with them by community recreation leaders are also excellent experiences to stimulate good writing.

Another way to stimulate interest in writing is to have a pleasant, colorful, interesting classroom. Window boxes holding flowers in bloom, a cage providing a home for hamsters, an aquarium containing tropical fish, a terrarium housing a pet turtle, and a bulletin board displaying the written work of the class are sources of stimulating experiences. One primary teacher maintains a bulletin board for display of children's original stories written in their own handwriting. Above them is the two-line caption, *Look at Your Stories. Can You Read Them?*

Children also find pleasure in composing original poetry. Good recordings aid in motivating this work. Likewise, many teachers have found that children enjoy making a series of slides to depict favorite scenes and characters from narrative poems. When the slides are projected, children may read or recite their poems.

Each day's activities can include experiences that stimulate imaginative thinking and skilled use of the language arts in creative expression. One sixth-grade teacher used for this purpose a film which tells the story of a hunter and the animals, birds, and flowers that he sees. The story is told without narration but with descriptive and mood-setting music which inspired one child to express his feelings in the following poem:

Forest Creature

A little forest creature
Is a merry, merry thing
He or she hopes and hopes
To bring the little baby back
To Mother, that little sweet thing.

Teachers of young children have found that picture dictionaries and word boxes are valuable aids in spelling. Charts listing study procedures are also helpful. Children who need special help with spelling are often aided by using a typewriter and by seeing special films.[16] A teacher of older children tells of her success in using a film on writing a term paper to illustrate this type of writing.[17]

One primary teacher has found the tape recorder useful as a means of directing children's attention to critical evaluation of their own performances and those of others. An indication of her children's growth in constructive criticism is evident in the following comment:

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[16] *Spelling Is Easy; Punctuation; Mark Your Meaning; We Discover the Dictionary.*

[17] *How To Write Your Term Paper.*

> One child criticized a "stringy" sentence in the evaluative summary by saying that she did not have breath enough to read it. She decided to make two sentences out of one. Another child suggested that the word "mobiles" be used instead of "moving things."

PERSONAL AND SOCIAL DEVELOPMENT THROUGH LANGUAGE ARTS

Each day's activities in language arts offer many opportunities for children to develop initiative and resourcefulness, to use their creative and imaginative talents, to evaluate their work, and to cultivate worth-while interests. In addition to perfecting the reading, writing, speaking, and listening skills of the language arts, the teacher must keep in mind the child's personal and social development.

When a child is encouraged to work out his own reading problems by techniques of word attack, he is being helped to develop his own resourcefulness. Likewise, the use of reference books to gather information for an oral or written report requires the exercise of his initiative in locating, selecting, and organizing material.

To encourage primary children to use their creative talents, one teacher used a life-sized, play TV set fashioned from plywood for eight- and nine-year olds. Sometimes these children would pantomime a story or give a puppet play or pretend to be prominent TV personalities. Besides having their imagination stimulated, they learned the value of being well prepared. In this way, they developed confidence when presenting materials to others. Those inclined to be shy tended to forget themselves in imagined situations.

Periods devoted to evaluation of individual or group work will develop the ability of children to appraise critically and to make constructive suggestions. Wholesome attitudes result when children take an active part in evaluation and are encouraged to point out the merits of each other's presentations as well as to make suggestions for mutual improvement.

Tape recordings are useful in measuring development of such skills as communication, planning together, sharing materials, or assuming responsibilities. By comparing recordings taken at the beginning or end of a project, a semester, or a year, teachers obtain tangible evidence of class progress both in the acquisition of skills of language arts and in personal-social growth.

In a similar manner, tape recordings of sessions on planning and evaluating can be compared in group discussions to point out personal and social growth. Such recordings can give a teacher the "auditory feel" of groups as they work together. Through the teacher's well-directed questions, children can also participate in comparing tapes to detect evidences of personal-social growth. Did you talk loudly and distinctly enough so that you could be heard? Were you courteous when making your suggestions to another? Did you interrupt when another person was speaking or did you await your turn?

Whatever the evaluative situation, it is necessary that each child be considered as an individual personality and helped to see improvement according to his ability. The wise teacher commends, and encourages the class to commend, individual accomplishments. Thus, for each child, there is a measure of satisfaction in the recognition of his efforts by his classmates.

Through the language arts program, the child is offered the means of cultivating worth-while interests and of acquiring and perfecting the skills to tap the world's storehouse of knowledge and to share this knowledge and understanding with others. So fundamental is the ability to read comprehensively, to write with accuracy and clarity, to speak fluently, and to listen carefully, that the classroom environment must provide for development and exercise of these skills in relation to the interests of children. First, the children should be allowed freedom to explore these interests, and afterwards to seek answers to their questions, and to share their information.

From both an intellectual and social standpoint, one teacher found the assembly program a valuable outlet for the exercise of the skills of language arts. Planning and preparing required the use of reading and writing. Presenting the program required the use of speaking and listening. Here was an opportunity to speak before an audience and to express ideas in the child's range of vocabulary. Each child had to think and speak while facing a group—an experience that called for poise and self-control.

An assembly program, a school breakfast for mothers, a sharing period, a report of a field trip, or the writing of poems and stories are all activities involving language arts that provide teachers with countless opportunities to help each child develop skill in reading, writing, speaking, and listening. These activities are all equally important in a child's acquisition of the ability to communicate effectively with others —one of life's most satisfying and necessary attainments.

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CHAPTER VIII

ARITHMETIC

INTRODUCTION

In this chapter, experiences of teachers with audio-visual materials are described in relation to the objectives of the program in elementary arithmetic. Because numbers play an important part in our everyday lives, whether we are children or adults, one phase of the program is based on the use of numbers in everyday situations, namely, "the social aspect of arithmetic." A second phase of the program, often termed "the mathematical aspect," is concerned with understanding our number system and using computational processes in real-life situations. The elementary teacher, therefore, carefully develops problem-solving experiences to help the child understand numerical relationships, acquire problem-solving skills, and begin to comprehend abstract mathematical concepts. Opportunities to use numbers in real-life situations are exploited, as counting the children in a group or measuring off a designated area for a playing field.

Audio-visual materials play an important part in both aspects of the program in elementary arithmetic. Objects which are arranged in various number groupings to help the child understand written number symbols are an audio-visual means of bringing concrete meaning to a verbal symbol or an abstract idea. A field trip to a neighboring bakery involves ratios of amounts-used to amounts-produced, and brings audio-visual reality to the use of proportional measurements in everyday situations. Likewise, selected films provide the historical background for arithmetical concepts.[1] Often, the subject matter is best experienced in the classroom through motion pictures.

SOCIAL ASPECTS OF ARTHMETIC

Every day, all of us find a need for use of numbers in transacting our daily affairs. As one teacher said,

> Stop and think of how many times you have directly used numbers since awakening this morning. Perhaps you have looked at the clock, set the radio dial, measured the coffee, checked the gas gauge in the car, figured out approximately how much money you needed for the day, or if you went to the store, you and the clerk used computation to figure out the bill.

Even before entering school, the child has many experiences with numbers and arithmetical concepts. Assembling a toy that requires filling a circular space with a round-ended block, is dealing with the concept of common geometrical shapes. Associating the clock with

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[1] *Story of Weights and Measures.*

"time for supper" or "time to go to bed," is awareness of time concepts. Enlisting mother's help to count pennies in a piggy bank or candles on a birthday cake, is an introduction to the quantitative values of numbers.

Although the child has many and varied in-school and out-of-school experiences with numbers, he may have no awareness of their importance. Within each school day, the teacher has countless opportunities to help children develop recognition and awareness. In one primary room, teacher and children decided to try a day without numbers. All number objects such as the calendar, the clock, number games, and the thermometer were put away. Taking the daily attendance was the first "day-without-numbers" problem. Numbers now began to take on importance. During oral reading periods, the children were faced with finding the correct page without referring to its number. Later in the day, playing a number game was ruled out because today was a "No-number-day." As the day progressed, the children found it necessary to alter other individual and group activities. Through the experience of a "day without numbers," this teacher provided her children with a concrete example of the importance of numbers in carrying on daily activities. In the "Cone of Experience," experiences of this kind are placed at the base of the cone, because, in the author's words, the direct, purposeful experience is "the bedrock of all education. It is the purposeful experience that is seen, handled, tasted, touched, and smelled."[2]

Another teacher used a film to help young children realize how frequently they need numbers in everyday life. Before the film was shown, this teacher discussed the uses made of numbers each day. She asked if pupils had ever considered what a day would be like if there were no numbers. In a certain film, a magic puppet offers to Bobby, a second-grade child, a day without numbers. The magical disappearance of numbers results in a series of frustrating experiences for Bobby, causing him to realize the value of numbers in everyday living.[3] Later, one child was encouraged to keep individual account of the times when he needed and used numbers during the day.

Bulletin-board displays of pictures and objects are another means of helping children discover ways in which they use numbers. In one primary room, children were encouraged to replace with their own pictures and drawings the teacher's display of pictures illustrating common uses of numbers. Through this activity, the bulletin board became a center of interest and children were motivated to note their many everyday experiences with numbers.

Another teacher found that a cardboard clockface created interest and helped children notice the essentialness of numbers to the process of telling time. A thermometer made of cardboard was used to relate numbers to temperature readings. Similarly, the calendar helps children to improve their concepts of the passage of time; scales to weigh things promote the understanding of measurement.

Number problems based on real-life experiences thus bring to children the realization that arithmetic is essential to everyday living.

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[2] Edgar Dale, *Audio-Visual Methods in Teaching*, The Dryden Press, New York, 1954, p. 42.

[3] *Day Without Numbers.*

When one group of children planned to build a "mock" store in their classroom, they took a field trip to the lumberyard to purchase needed building materials. Measuring and figuring the cost of materials made computation necessary. More problems in numbers arose as the children built, decorated, and furnished their store. After the store was completed, they further experienced problems in use of numbers when totaling the cost of items purchased, when making change, and when marking items that were to be sold. The teacher of these children expressed the value of this project in these words:

> Letting children discover the solutions to these problems is much more valuable and meaningful than doing abstract number problems from the book, for children are not only beginning to understand the role that numbers play but also beginning to feel a need for using these numbers to figure out a real-life situation.
>
> Building and maintaining a store is not the only means of providing experiences for the class. A simple experience, such as making cookies, can also institute many number problems. Following the recipe, counting and measuring amounts of ingredients, cutting the number of cookies, counting the number of people so that there are enough cookies for all, setting the dial on the stove, watching the clock so we know when they are done—all involve number experiences. Have you ever tried to cook knowing just the ingredients without knowing the number measurements or without involving any numerical computation?

An upper-grade teacher suggests a field trip to a grocery store to increase awareness of the use of fractions in daily activities. From their notes, the children can discuss the prices of various items of food in terms of cost per fractional part of a pound or of a gallon. Problems developed from such a field trip take on more meaning when they can be connected to some classroom activity, such as planning and preparing refreshments for parents.

Through the use of many types of audio-visual materials, teachers make these experiences real and meaningful and bring about the understanding that numbers are important in everyday living.

MATHEMATICAL ASPECTS OF ARITHMETIC

Complex computational processes depend on knowledge of the fundamentals of addition, subtraction, multiplication, and division. Moreover, the development of a meaningful vocabulary to express numerical relationships, and the ability to apply logical reasoning to the solution of problems, both involve knowledge of complex computational procedures.

Stories about the history of numbers, why and where they began, will help children to realize that numbers were needed long ago and have been used by people round the world. As an introduction to what life was like before there were numbers, one teacher dramatized the story of Chief Tecumseh's method of tallying his ponies each day. A little later she used appropriate cutouts on a flannel board to illustrate the story of numbers and to show the relationship of our Arabic numerals to the numbers of other countries.

In another classroom, children dramatized a story of how early man counted his belongings, enumerated the number of animals he killed on a hunting trip, and devised early tallying methods. As a follow-up, this teacher encouraged the children to make variations of the early counting board and then to demonstrate and explain their handmade pieces before the class. Some filmstrips are also helpful in presenting the story of the origin and development of our number system.[4]

Early in the primary grades, children begin to deal with computation in functional situations. They may count to find the answer to simple problems, such as, "How many pencils and sheets of paper will be needed for the boys and girls at this table?" An arithmetic table or an arithmetic corner can be filled with many kinds of objects that children can count.

> Most of the things to count were gathered together by the pupils. There are brightly painted bottle caps, old checkers, small wooden blocks, tickets, and coins. Lollipop sticks, meat skewers, and tongue depressors are ready to be tied into bundles of ten and bales of ten tens.

Children may frequently find it necessary to count when they are working with projects in science or social studies. Through these subjects, they may also be introduced to relative concepts of size, such as, "larger than."

One teacher used a film on the number *nine* in serial relation to the number *eight* and as three groups of three each. It also included facts of addition and subtraction related to *nine*.[5]

Numerous experiences in counting concrete objects also introduce children to the importance of *ten* as the basis of our number system. For example, strings of like objects, with each tenth object painted a particular color, will help to focus the child's attention on the number ten. Other counting devices help children to understand the "place-value" concept and the way it functions.

One teacher made a chart with pockets for the hundreds', tens', and ones' columns. The children put cards into the pockets to represent a given number. When a child counted by ones, he found that he could put as many as nine cards into the one's pocket. When he came to the tenth card, however, it became necessary to move the ten ones into the ten's column to make one ten. Other place-value devices include the place-value box and the stick board. All such devices require the child to move objects to the left as ten *ones* are tied together to make one *ten* or ten *tens* are tied together to make one *hundred*. These concrete experiences in moving objects to the left are important to a full understanding of the place-value concept.

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[4] *History of our Number System: Knowing Numbers.*

[5] *Parts of Nine: Arithmetic Series.*

Another teacher suggests the abacus to help children understand the meaning of three-figure numbers.

> The abacus will increase understanding of what we mean by ten's place and hundred's place in numbers. If the supply closet does not contain an abacus, one can be made very quickly in the classroom. All you need is a rectangular board, two small strips of wood for the ends, three pieces of wire, and thirty wooden beads.

Brueckner and Grossnickle say of the abacus, "When a pupil represents a number on this abacus, he is able to see the function of zero as a place holder."[6] Filmstrips can be used as supplementary material.[7] Several series of filmstrips proved helpful to one teacher.[8]

> These filmstrips were utilized to aid in recognition of numbers in small groups without counting; to associate number symbols and number words with small groups of concrete objects; to associate number symbols and number words in counting by 1's, 2's, 5's and 10's to 100; and to form "teen" numbers by associating a group of 10 objects and others.

Objective materials are used extensively to help children recognize various number groupings and to solve simple problems in addition and subtraction. Pictures of objects replace the objects themselves as children progress from the concrete to the abstract.

Audio-visual materials help not only in developing an understanding of numbers but also in providing practice in their use. Electric question-and-answer boards give practice in new arithmetical facts or in reviewing old ones.

> The electric board is a simple device which enables a teacher or pupil to set up a series of matching questions in one column and a number of possible solutions in the second column. When a pupil places one lead wire on a question and the second one on the correct answer, he is rewarded by seeing a bulb light up or hearing a buzzer or both. If he fails to select the right answer, he receives the "silent treatment"—no light, no noise.

Another teacher made a multiplication-division board with numbers written on removable blocks.[9] Numbers one through nine across the top and down the left-hand side were painted black; the others or the "products" were painted green. To use the board, all the product blocks were turned to face the plywood base. The child could select any number in the left-hand column and any number in the column across the top. When he could give the correct product of these two numbers, he was

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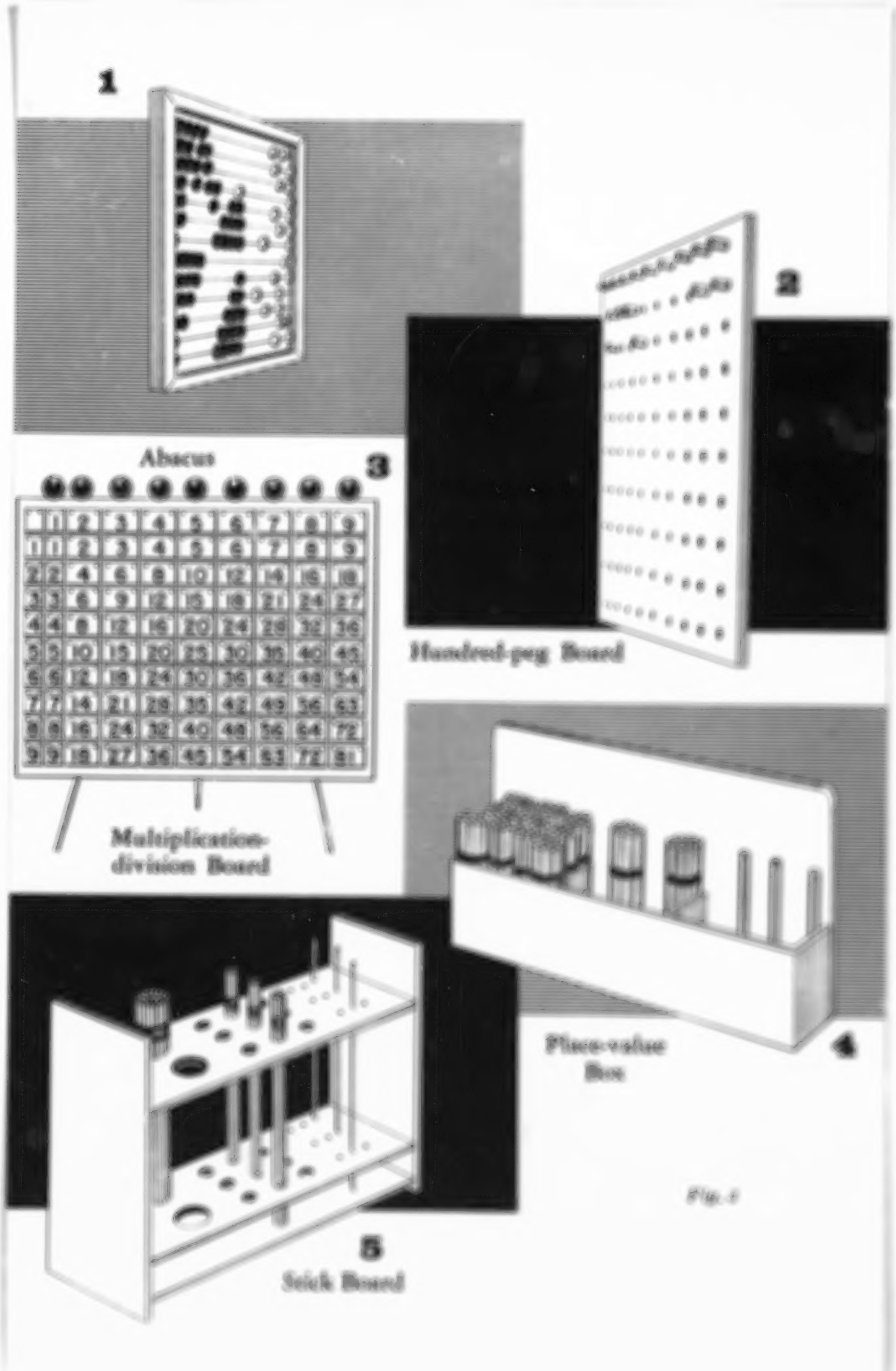
[6] Brueckner, Leo J., and Grossnickle, Foster E., *Making Arithmetic Meaningful*, The John C. Winston Company, Chicago, 1953, p. 44.

[7] *Zero, A Place Holder.*

[8] *Using and Understanding Numbers; Using Numbers; Work and Play with Numbers, Primary Arithmetic.*

[9] See Figure 3, p. 90, ch. VIII.


1
Abacus
2
Hundred-peg Board
3
Multiplication-division Board
4
Place-value Box
5
Stick Board

	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9
2	2	4	6	8	10	12	14	16	18
3	3	6	9	12	15	18	21	24	27
4	4	8	12	16	20	24	28	32	36
5	5	10	15	20	25	30	35	40	45
6	6	12	18	24	30	36	42	48	54
7	7	14	21	28	35	42	49	56	63
8	8	16	24	32	40	48	56	64	72
9	9	18	27	36	45	54	63	72	81

Fig. 4

permitted to leave the block turned over with the answer facing out. When he had given the correct answer to all the combinations in any given row and all the blocks were turned outward, a light over the row would automatically turn on. This teacher evaluated her homemade device as follows:

> Of course, it always fascinates a child to work something. When the children are working at their seats the board should be blank so it will not become a "crutch" or a temptation to glance at the board for an answer. When used as a contest between pupils . . . it can be a great motivator.

A cardboard circle similar to a clockface can also be used to reinforce basic numerical facts. The numbers can be arranged consecutively or randomly. One teacher used such a device for class participation when the children were learning the multiplication tables. This device served in individual drill, small group work, and class games and contests.

To bring meaning to fractions, one fifth-grade teacher brought apples and oranges for the children to divide into halves and fourths. Another teacher placed cutout pictures of food and other objects on a flannel board. By putting fractional parts of various foods together, children were able to see that the several parts made up a whole and that some fractional parts were larger or smaller than others. After handling and cutting real objects into fractional parts, the pupils have a better background for understanding fractions abstractly.

> Use the flannel board to help you the next arithmetic period. Have circles, halves, fourths, *etc.*, cut out of bright colored felt. These should be large enough so that they can easily be seen from all sections of the room.
>
> Ask a child to place a circle on the flannel board and then pick up three of the one-fourths (these should not be the same color as the circle) and place them upon the circle. Hand him the symbol ¾ and have him place it near the figure. Ask him what the meaning of the three is—and the meaning of the four. Obviously this device can be used to help with computation as the year progresses.

Other activities in the classroom offer numerous opportunities for children to make further use of the facts which they have learned about fractions. For example, one filmstrip series, which, in addition to explaining fractions also applies ideas to new situations, can be used at various points in the unit.[10] As in learning to count, pupils can further their understanding of fractions at the arithmetic table or corner with measuring cups and liquid and bulk materials that can be equally divided into the containers; with different lengths of string and ribbon that can be cut into thirds, fourths, *etc.*; or with sets of fractional circles that can be used to help children visualize the comparative sizes of fractional parts.

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[10] *Introduction to Fractions.*

> Children should use the fractions they are learning in arithmetic class throughout the entire day. Have them measure out paint and mix with the correct amount of water. Teach them to estimate the sizes of objects in their drawings. "The little boy is one-half as tall as his daddy in this picture." "I'm going to make my train about one-fourth of the way up on the paper."

Teachers may also turn to motion pictures to present the basic concepts of fractional parts.[illegible] From the simplest addition problem through more complex mathematical computations involving decimals, decimal fractions, and percentages, audio-visual materials of all kinds can make worth-while contributions to the child's learning and understanding.

One teacher suggests a bulletin-board display of computing devices, such as the slide rule, Napier's bones, and a computing machine.

> The slide rule or "slipstick" interests students because "only men who know what the score is—like engineers—use slide rules." Thus, the slide rule can be used to motivate pupils to "brush up on our decimals so we can see the point."

As supplementary material this teacher also used filmstrips to show pupils the operation of the slide rule and the method of placing the decimal point in estimated answers.[illegible] For pupils who were still having difficulty in understanding decimals, she used a film to clarify the meaning of decimals, their relationship to common fractions, and the way in which they are written.[illegible] Pupils of this teacher developed a bulletin-board display of pictures and news clippings to show the relationship of decimals to daily living. For teaching percentages, the flannel board was a useful instructional tool.

> A flannel board works very well in teaching percentages. One can show the whole, separate the parts which make up the whole, and show what fraction of the whole the per cent is. One could also make a per cent "wheel" for use on the flannel board.
>
> A thermometer of demonstration size, made of cardboard with colored ribbon for the liquid, can be used to introduce students to signed numbers. Adding numbers below zero (negative numbers) can be easily clarified by the use of the thermometer. One can proceed from the thermometer to a diagram of a football field showing yards gained and yards lost . . . The company from which we purchased our textbooks makes available free wall charts for showing the addition of signed numbers.

Computational skills and problem-solving skills thus go hand-in-hand, and the need of both is evident in many classroom experiences.

Audio-visual materials are useful in helping children to visualize a problem. Concrete objects to handle, or cutouts on a flannel board

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[illegible] For example, *Fraction Series: We Discover Fractions*.

[illegible] *The Slide Rule: Part I & Part II*.

[illegible] *Fraction Series—Decimal Fractions*.

can be moved about as the child tells in his own words what is happening in the problem situation. As soon as he has the story in mind, he is ready to identify the process needed. Here again the manipulative materials assist him. When he dramatizes the problem with objects, putting groups together or taking them apart, the procedures of adding and subtracting become obvious. If he finds that the groups which he moves together on the flannel board or the groups of sticks which he puts together are identical groups, he knows that multiplication is the process to use. Once the problem is visualized and the process identified, problem solving becomes a simple exercise in computation.

Teachers can also help upper-grade pupils to visualize problems and can give meaning to the problem-solving process through the use of objects. For example, cylindrical and conical containers can be constructed according to the same scale. As pupils fill a cone with sand and then pour the sand into the cylinder, they discover the relationship between the formulas for finding the volume of cylinders and of cones. Many teachers have also found that films are a way to bring meaning into a step-by-step approach to problem solving.[11]

As children mature in their mathematical thinking, illustrations and diagrams help them to solve problems by visualizing the abstract. Here, the chalkboard serves as a place to record the problem-solving methods used by the children.

Variety in the use of audio-visual materials is desirable. One teacher aptly says, "The wise teacher uses a variety of materials. Change attracts attention, and careful planning leads the child from where he is to new and broader learning."[12]

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[11] *How To Find the Answer (Mathematical Problem Solving)*.

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CHAPTER IX

HEALTH AND SAFETY

INTRODUCTION

In our country today, every means of communication is being used to make people aware of the importance to a happy and successful life of good health and safety practices and of personal and social qualities which are desirable. Through radio and television, appeals are made for support of organizations active in the study and control of various diseases. Newspapers and magazines feature articles about healthy, wholesome individual and family living. Community organizations sponsor special activities in sanitation and cleanliness through "Clean-up Weeks." Billboards and signs along the streets and highways remind the public of safe-driving practices.

The child, as well as the adult, is the object of all these efforts; even before entering school he is introduced to health habits in the daily routine of the home. In his out-of-school activities, he becomes a member of, and participates in, organizations with programs centered in the social, physical, and mental development of the individual.

Because home and community regard health and safety as so important, the teacher is provided with a natural opportunity to introduce health experiences into the classroom. Audio-visual materials are essential in making such experiences meaningful. Charts and graphs can make concrete the difficult fundamental concepts of adequate nutrition. Motion pictures furnish information for discussion of conduct in varied situations. Models become useful in picturing basic patterns of movement in games and dances. Radio and television programs depict lives of people who have contributed to our knowledge of healthful living. Recordings of "safety songs" present "rules" in tuneful and ear-catching melodies. Exercises, games, dances, and sports provide concrete experiences which develop such social qualities as playing fair, taking turns, and exercising leadership and followership.

GOOD HEALTH HABITS

Before the child can understand the importance of good health habits, he needs to know about the human body, its structure, functions, and needs. Charts, diagrams, models, films, and filmstrips are particularly useful in giving a clear picture of the bone structure that forms the basic framework of the body, and in showing the location of the various organs. In one classroom, the teacher and children made their own flip-over chart by tracing a drawing of the human body which had been enlarged with the opaque projector. This drawing served as background for successive flip-over sheets which, when superimposed over the basic drawing, enabled the children to locate and place internal organs within the body's structure.

Teachers will often find within their own school or community numerous working models which can be brought into the classroom.[1] Models may also be borrowed from state health organizations[2] or from local medical and dental offices. One teacher suggests a visit to that section of a museum which exhibits life-like models of the human body. Unbreakable, anatomical models of vinyl plastic, available from school-supply houses, offer valuable manipulative experiences for children because the construction of these models permits the disassembling of their various parts. Likewise, films give children a clear picture of the structure of ears and eyes and point out the importance of proper care.[3] Through animated diagrams and cinefluorography, one film pictures vividly the body's structure, the function of major internal organs, and the movement of bone and muscle about the joints.[4]

In one upper-grade health class the teacher used charts, diagrams, and films in a unit about menstrual hygiene for teenage girls. The charts and diagrams helped to explain the structure and function of the female reproductive organs and the facts of menstruation. This explanation was followed by the showing of a film with animated drawings to explain the physiology of menstruation, suggest methods of personal hygiene, and encourage the teenage viewer to take a wholesome attitude toward the menstrual function. After the showing of the film, discussion centered in questions raised by the film. Booklets especially written for this age group were distributed, which answered many questions and brought out hints on health, poise, and grooming. Various types of sanitary napkins, tampons, and belts were exhibited. A second film was then shown which used live actors to explain menstruation and to show the development in a thirteen-year-old girl of good health habits and a constructive attitude toward the menstrual process.[5] As a follow-up, the chalkboard was used to summarize important points learned in the study.

A number of companies have produced many good series of filmstrips, which relate structure and function of the body with essentials of good health.[6] Frequently, other units of study provided the teacher with opportunities to bring in various aspects of good health.[7]

A study of community helpers in a social studies unit, related the work of grocer, baker, and milkman to the theme "good food for good health."[8] Large posters depicting the seven basic foods were displayed about the room. The children planned menus and visualized them with pictures on a flannel board. The importance of the school milk program was discussed, and a grocery store was constructed in the classroom. Other teachers have used classroom feeding demonstrations or a "breakfast at school" activity to provide concrete experiences in nutrition. A number of health films of varying degrees of difficulty presented nutritional concepts dealing with fundamental good eating habits.[8]

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[1] See Ch. VI.

[2] For example, the Indiana Heart Foundation.

[3] For example, *Hear Better: Healthy Ears; See Better: Healthy Eyes.*

[4] *Learning About Our Bodies.*

[5] *Molly Grows Up.*

[6] *Primary Health Series*, a series of six filmstrips entitled *Food for Health, Keeping Clean, Keeping Well, Rest and Sleep, Straight and Tall*, and *Strong Teeth.*

[7] *The Health Adventure Series*, a series of nine filmstrips entitled *How Your Ears Work, Sleep and Rest, Your Bones and Muscles, Your Eyes at Work, Your Food and Digestion, Your Heart and Lungs, Your Nose and Throat, Your Skin and Its Care*, and *Your Teeth and Their Care.*

Your Body Series, a series of eight filmstrips entitled *How You Breathe, How Your Body Grows, Your Blood System, Your Body's Drainage System, Your Bones, Your Digestion, Your Muscles, Your Skin.*

Closely allied to good food and water for good health is the cleanliness of the food. On a field trip to a dairy or a bakery, for example, children can be taught to understand that the milkman and baker supply us not merely with *food*, but with *clean food*. For a better understanding of how the community provides clean water, one school produced its own motion picture of the community water supply.[9] Discussion of films about the purity of food and water can lead children to the "why" of cleanliness in food and water. Filmstrips will serve as an introduction to reasons why food must be kept clean and hands should be washed before eating. One film strip also points out factors of cleanliness in relation to accidents and illnesses, such as, the common cold.[10] Similar filmstrip experiences can show to upper-grade children the role of personal cleanliness in resisting disease.[11]

One upper-grade teacher introduced the subject of disease and the body's means of fighting disease germs with a film.[12] A filmstrip served as a follow-up for more detailed discussion of microorganisms, such as, bacteria, protozoa, fungi, and viruses, that cause common infections and diseases.[13] The first filmstrip was then used to explain the body's external and internal defense system for developing immunity to disease.

DEVELOPING MOTOR SKILLS

In addition to helping the child build a strong and healthy body, the teacher also is concerned with developing his motor skill. Planned programs of exercises, games, and dancing, teach the child to coordinate and to develop rhythmical patterns of muscle use. Active participation in the use of object materials comprises a large part of daily classroom experience. A ball or bean bag used in simple tossing and catching exercises develops arm and hand muscles as well as muscle coordination. Hitting a ball with a baseball bat, tennis racquet, or croquet mallet requires the use of arm, shoulder, and upper body muscles and coordination of eye and muscle movement. Dozens of items of playground equipment, such as skipping ropes, tumbling mats, and jungle gyms, comprise the object materials used in physical fitness programs.

In games and sports, the child is given opportunity to use motor skills in organized play. Now he needs to know the patterns of the game. Many teachers have found models, flannel boards, films, and filmstrips useful in teaching children how to play games. A pupil reports that his teacher used a scale model of the playing field and moved models of the players to demonstrate offensive and defensive maneuvers. The flannel board is frequently substituted for the model when a basic pattern of movement is taught in game or dance. Actual demonstrations by the teacher, followed by pupil practice, help the child to get the "feel" of various positions of hands, arms, and feet and of body movements. Drawings or photographs of basic positions, for example, golf stance, if displayed around the practice area, will provide visual references for the pupil practicing golf stance. For every major sport—baseball, basketball, football, and track—basic instructional films have been produced.[14]

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[8] *Eat for Health* and *Good Eating Habits* are suitable for children in the primary grades; *Food That Builds Good Health* and *Fundamentals of Diet* are useful on the upper-grade level.

[9] *Our Community—The Water We Drink*, 17 min, sd, color, Gary Public Schools, 1955.

[10] *Controlling Germs*, for primary children.

[11] *Oh, Cleanliness*, for upper grades.

[12] *Body Defenses Against Disease*.

[13] *Germ Invaders*.

Some teachers have made slides of basic plays in games to use on a tachistoscope. This type of projector allows for varying the length of time that slides can be flashed upon a screen. By shortening this time, slides can be flashed upon the screen in repeated showings so that children develop an increasingly rapid recognition of the pattern of general play. The result is to increase their visual acuity and consequently their skill.

Through exercises and games, children learn to coordinate the muscles of their bodies and to time their motions with skill. Some schools use the trampoline to develop the "feel" of muscle coordination and body rhythm. Mimetic activities, such as going through the motions of jumping rope without the rope, also help children to develop this muscular "feel."

In the primary grades, exercises and games include both natural and self-expressive rhythms. Simple exercises that repeat such movements of the body as running, stretching, or hopping develop natural rhythmical movements. The beat of music in singing games, provides the rhythm for skipping, running, or hopping steps[15] or the background for this purpose.[16] Films will likewise serve to stimulate children's imagination to expression in rhythm. There are a number which show experiences that children can express in rhythmical movement, as playing in the leaves, raking the yard, wood animal activities, and fall activities in the home.[17]

Square, circle, and folk dances have great appeal for children in the upper grades, and albums of instructional records for teaching square and folk dances have been especially developed for boys and girls of this age. Films with accompanying recordings and an instructional manual are useful in teaching the basic patterns of five well-known square dance figures and an original singing call.[18]

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[14] Some of these films are *Batting Fundamentals*; *Catching Fundamentals*; *Hitting in Baseball*; *Ball Handling in Basketball*; *Defensive Footwork in Basketball*; *Shooting in Basketball*; *Ball Handling in Football*; *Blocking in Football*; *Tackling in Football*; *Jumps and Pole Vaults*; *Shot Put*; and *Hurdles*.

[15] Cf. *Skip to My Lou*.

[16] Cf. *Childhood Rhythm Records*; *Rhythmic Activity Album*; *Rhythmic Play*.

[17] *Autumn Is An Adventure*: *Background for Reading and Expression* and *What the Frost Does*: *Background for Reading and Expression*.

An important aspect of physical fitness programs is the development of desirable attitudes toward exercise and recreation. Through actual participation in exercises, games, and dances, children experience enjoyment in the physical fitness activities of organized groups. Certain films are designed to help boys and girls recognize the value of perfecting various motor skills by practice.[19] For upper-grade children there is a useful film on ways to promote physical health and social adjustment by planned physical exercise.[20]

DESIRABLE PERSONAL AND SOCIAL QUALITIES

Physical fitness programs and classroom experiences in good health habits help the child to develop a strong body and good personal qualities.

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[18] *Let's Square Dance Series: Square Dance 1: Take a Peek; Square Dance 2: Split the Ring; Square Dance 3: Grapevine Twist; Square Dance 4: Forward Up Six; Square Dance 5: Texas Star;* and *Square Dance 6: Hoosier Promenade.*

[19] Cf. *Exercise for Happy Living.*

[20] *Exercise and Health.*

15. *Many types of audio-visual materials can be used for recreation by individuals or small groups.*

Tickle Table
Are you like the little bunny?
Do you laugh when things are funny?
Here are things to make you giggle
Till your toes begin to wiggle.
Little red cars
Come have fun
Your work is done

In one school a class of fourth-grade children investigated two questions. Why are people attracted to us? Why are we attracted to people? Various aspects of good grooming, such as, cleanliness and neatness were introduced in classroom projects. For example, a clothes closet fashioned from a box provided a place for orderly arrangement of the clothes of two paper dolls. A bulletin-board display of pictures from magazines illustrated the children's ideas concerning how to make a pleasing appearance. Certain films would be useful in such a project because they emphasize the essentials of careful grooming.[21]

A vocational home economics teacher of junior high school girls suggests a field trip to the cosmetics department of a local store, where a demonstrator discusses make-up and its application. Classroom activities can consist of demonstrations by a local beauty shop operator and practice sessions in the care of nails, skin, and hair.

During physical education periods, similar experiences for upper-grade boys can be provided through demonstrations by barbers and men's clothing salesmen. Participative activities for boys can be planned to develop good posture and coordination of movements to overcome awkwardness. A recently produced filmstrip series points out the importance of personal cleanliness, physical fitness, and the selection of proper clothes for the improvement of a man's personal appearance.[22] One filmstrip in this series, gives a prospective employer's reaction to the personal appearance and conduct of an applicant.[23] For mixed groups, a film[24] or a filmstrip[25] can serve as a springboard for discussing health, posture, cleanliness, neatness and appropriateness of dress, and as a means of emphasizing the importance of good habits of daily personal appearance.

At an early age, children can understand the meaning of the familiar adage, "Pretty is as pretty does." Because the young child is self-centered, many of his early school experiences, such as sharing periods, are planned to bring about cooperativeness in work and play. Many times the young child can evaluate his actions more objectively when he sees examples of his behavior in stories projected on the screen. For example, one second-grade group applied the situations presented in a film to their immediate behavior problems on the playground. The film pictures a small boy and his brother as they learn the fundamentals of fair play by sharing, taking turns, and following the rules of the game.[26]

In another primary classroom, two filmstrips from a conduct series were used to stimulate evaluation of the group's behavior problems.[27]

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[21] *Care of Hair and Nails; Care of the Skin; Eyes and Ears.*

[22] *Grooming for Boys—Clean as a Whistle, Fit as a Fiddle, Strictly Business, and Time to Attire.*

[23] *Strictly Business.*

[24] [illegible] *How to Be Well Groomed.*

[25] [illegible] *As Others See You.*

[26] *Let's Play Fair.*

[27] *The Conduct and Behavior Series—At Home; In Public Buildings; In School; On The Street; The Guest; Responsibility; Shopping; Traveling; and Visiting Friends.*

The series dealt with desirable social conduct presented through situations familiar to primary children. The class were encouraged to ask questions during the showing, while individual frames in the filmstrip were held on the screen for comment and discussion. Later, another film was shown.[illegible] Through these projected materials, the children were able to identify many of their group behavior problems. In addition, a field trip to the playground of a neighboring school gave them firsthand experience in observing another group of children their own age at play together. As comparisons were made, changes in behavior followed, including acceptance of an "outsider" into play groups and increased participation in organized games.

Children need to know how to conduct themselves in various social situations. In one elementary school, a unit on good conduct that originated in a health class was extended to an integrated school program of good citizenship. Good manners and courtesy in writing invitations, entertaining guests, and introducing people were illustrated through a film which presented a group of children in the process of arranging an exhibit on courtesy.[illegible] Other films[illegible] and filmstrips[illegible] were used to introduce specific aspects of courtesy. Throughout the school year, each child directly experienced the responsibilities of host or hostess. Each child had experience in welcoming visitors to the classroom, introducing them to class and teacher, escorting them on tours of the school, and attending to other social aspects of a visitor's pleasant stay. For children new to the school and the class, the host and hostess became a "class brother or sister" to help the newcomers. Work by the entire class included both making posters and planning, organizing, and exhibiting displays on courtesy, cleanliness, and other aspects of good school citizenship. Dramatized skits about good manners were written and presented, sometimes over the school's public address system or in a school assembly program. In some assembly programs, the host or hostess officiated as master of ceremonies and introduced a guest speaker. In all assembly programs, the pupils practiced appropriate conduct while entering and leaving the auditorium and in listening courteously. In this fused school program of good citizenship, activities developed the theme that happy, courteous people make a happy school. The benefits derived from this intermediate-grade experience bore fruit in the later attitudes of these pupils toward their new junior high school building. They resolved to make it a pleasant, happy, well-kept school.

In the primary grades, the development of social qualities is more frequently integrated with the daily classroom activities of working and playing together than it is introduced by programs designed especially for this purpose. Classroom parties for other children or for parents

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[illegible] *Fun on the Playground.*

[illegible] *Everyday Courtesy.*

[illegible] *How Do You Do?; Good Sportsmanship.*

[illegible] *Manners Make a Difference Series—Good Manners at Home; Table Manners; Why Have Good Manners?; Good Manners on the Street, and in Public Conveyances; Good Manners When Visiting; Good Manners at Play; While Listening to the Radio or Watching a Television Program; Good Manners at the Movies or the Theatre; and Do's and Don't's in Good Manners.*

provide direct experience in such social amenities as writing invitations, arranging a refreshment table, or introducing and serving guests. In the upper grades, many of these experiences go beyond regular classroom experiences in health, becoming essential extra-class activities or parts of established home economics courses. The planning period of upper-grade class or club parties provides a discussion of "dating," for which films can serve as the springboard.[18]

School clubs also provide practical experience in the social graces. Similarly, home economic experiences may be used for teenage girls. In some schools, moreover, special home economics courses are also open to boys. Exchange dinners or parties between boys' and girls' clubs of the intermediate and junior high school grades afford another way of extending the opportunity to learn how to feel at home in such social situations. Certain films and filmstrips are likewise helpful in stimulating an objective attitude toward acquiring knowledge and skills of social living without embarrassment to any class member.[19]

DEVELOPING GOOD SAFETY HABITS

The child's first safety experience in school will center in his immediate need of going to and from school and of practicing safety in the classroom and on the playground. With a group of handicapped children, one teacher began a safety project by making maps of the schoolroom, later extending this activity to making a large scale floor map of the surrounding community. Field trips were taken to note the location of gas stations, garages, houses, and traffic signs and lights. On one trip the group discovered no stop sign at one intersection. This matter was discussed with the school safety patrol. The children also wrote a letter to the mayor informing him of the situation.

To help the class gain an understanding of instruments for safety, a hand-operated traffic light was placed on the chalkboard in the front of the room. This device was used to direct various activities throughout the day as the teacher emphasized correct behavior toward a red, green, or yellow light. Each day, a patrolman was selected to control the changing of the lights. Yellow, the "get ready" light, was used in all procedures of preparing for work or cleaning up afterwards; the red light was the signal to stop and to listen; and the green light signaled "go ahead" or begin work. Through this experience the children learned safety conduct and became more safety conscious.

Another teacher suggests, as committee work for a safety class, making a survey of hazards in the school and of unsafe habits practiced by pupils. From committee reports, rules can be formulated to improve school safety; and posters and slogans can be displayed at various places in the school to illustrate these rules. Children may design posters for entry in the safety poster contest, which is sponsored annually by the

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[18] *Date Etiquette; [illegible] and [illegible].*

[19] *Arranging the Buffet Table; Arranging the Tea Table; Dinner Party; Guest Party Manners; Let's Give a Tea; Food Table Manners; Social Courtesy; What Makes a Good Party?*

National Safety Council. Surveys of accidents in the school can also be made and the location of these accidents spotted on a map or model of the school. Posters placed in accident areas, in hallways, or on dangerous stairways will caution other pupils. Films can be used to introduce a school safety project or serve as a springboard for further activities, once the project has been started.[illegible]

A number of audio-visual materials will help children to determine the safety routes and practices they should observe in their daily school-to-home and home-to-school trip. One teacher suggests constructing a model of a crosswalk or a diagrammatic and pictorial representation of the correct way to cross a street. A flannel board or magnetic bulletin board will also help children keep in mind the need for safe practices. Following direct experiences in the classroom, the showing and discussion of films will serve to reinforce safety instruction.[illegible]

Diagrams and charts about bicycle safety are available from the Educational Division of the State Police. The Bicycle Institute of America and the National Safety Council also make available free literature about bicycle care and safety. A teacher suggests arranging with the local police force for a bicycle rodeo in which prizes are given to safe and skilled riders. An amusing but informative film, along with posters and demonstrations, could be used in a school assembly to create interest in the Rodeo.[illegible] Selected films will do much to inform as well as to develop appreciations of the work of law-enforcing personnel.[illegible]

The child's direct participation in fire drills and learning what to do and where to go when a drill is called is another early school experience. An excellent way to prepare young children for participation in fire drills is to show a film.[illegible] Study of firemen as community helpers will relate their services to making the home, school, and community a safer place in which to live. An exciting part of a visit to the fire station is a fireman's demonstration of the use of various kinds of fire extinguishers to put out fires.

For older children, field trips to local manufacturing concerns will give opportunity to note fire precautions in buildings and safety devices on machines. In this way, boys and girls begin to understand the need for safety in the working world. Visits to a state police post, an accident receiving room of a hospital, and the air-traffic control department of an airport, where explanations are given by personnel in charge, will contribute valuable experiences in safety.

Because good health and safety habits and good personal and social qualities are so vital to children, the teacher must take every opportunity to help them develop good habits and wholesome attitudes. Furthermore, because the teacher must provide a wide range of experiences in order

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[illegible] Safe Living at School.

[illegible] Safety Lessons in Stop, Look and Listen, Going Our Way, Safety on the Street, Safety on the Way to School, and Safety to and from School.

[illegible] Bicycle Talk, in which a family of chimpanzees ride bicycles.

[illegible] Cf. Stop and Go on a Bike.

[illegible] For example, Fire! Safety Lessons What To Do.

to achieve the scheduled health and safety objectives, audio-visual materials become an important aid to the health and safety program.

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Series I
Fundamental Rhythms
Animal and Toy Rhythms
Play and Character Rhythms

Series II
Rhythm Combinations
Bouncing Balls, Jumping Ropes
Interpretative and Dance Rhythms

Series III
Fundamental Rhythms: Walking; Running; Skipping
Basic Dance Steps
Basic Movements; Floating

Series IV
Yankee Doodle; Dixie
Pop Goes the Weasel; Comin' Through the Rye
Turkey in the Straw; Maypole Dance

Series V
Animal and Character Rhythms
Ball Bouncing and Tumbling Rhythms
Play and Dance Rhythms

Series VI
Push the Business On; Mexican Social Dance; Jig a Jig Jig;
Jolly Is the Miller
Clap and Tap; Sevens and Threes; How D'ye Do, My Partner;
Skip Around Your Partner
Saturday Afternoon; Waltzing With My Partner; Girls and Boys
A-Dancing; Pease Porridge Hot

Series VII—Nursery Rhymes and Singing Games
Baa Baa Black Sheep; Ride a Cock Horse
Humpty Dumpty; Hickory Dickory Dock
Two Little Blackbirds; Little Miss Muffet

Hey, Diddle, Diddle; Pussy Cat; The Crooked Man
Ach, Ja!; A-Hunting We Will Go
Bow Bow Belinda; Looby Loo

Series VIII—Folk Dances
Ace of Diamonds; The Crested Hen
Norwegian Mountain Dance; Heel and Toe Polka; Patty Cake Polka
Bleking; Swiss May Dance
Seven Steps; Come, Let Us Be Joyful
Mountain Polka

Folk Dance Records, arranged and recorded by Burns-Evans-Wheeler, The Stanley Bowmar Co., New York, n.d., 78 r.p.m., two albums of four records each as follows:

Album I
Bleking . . . . . Swedish
Bow, Bow Belinda . . . . . American
[illegible] Dance . . . . . Mexican
Children's Polka . . . . . German
Seven Steps . . . . . German
Danish Dance of Greeting . . . . . Danish
Chimes of Dunkirk . . . . . Belgian
Carrousel . . . . . Swedish

Album II
Put Your Little Foot . . . . . American
Kolo . . . . . Serbian
Oh! Susanna . . . . . American
Csebogar . . . . . Hungarian
Heel and Toe Polka . . . . . American
Swedish Clap Dance . . . . . Swedish
[illegible] . . . . . French

Honor Your Partner by Ed Durlacher, The Stanley Bowmar Co., New York, n.d., 78 r.p.m., five albums of three records each as follows:

Album I
Susanna
Formation of Sets, Head and Sides
Do-Si-Do and Swing
Around the Outside and Swing
Two Head Ladies Cross Over

Album II
Yankee Doodle
Sweet Alice Waltz Quadrille
Duck for the Oyster
Ladies Chain
Darling Nellie Gray
Push Her Away

Album III
Loch Lomond
Ladies Grand Chain Waltz Quadrille

Texas Star
Left Hand Lady Pass Under
My Little Girl
The Basket

Album 3:
Forward Up Six and Back
The Virginia Reel
Lady Walpole's Reel
The Grange Hall
Honor Your Partner

Album 4:
Haste to the Wedding
[illegible]
White Cockade
McLeod's Reel
Wagoner Reel
Fox Hunter's Reel
[illegible]
Arnold's Sherwood Mountain

Rhythmic Activity Album, arranged by Florence Bassett and Cora Mae Chestnut, The Stanley Bowmar Co., New York, n.d., 78 r.p.m., three records as follows:

Record 1:
Basic Rhythmic Activities

Record 2:
Combinations

Record 3:
Music for Rhythmic Dramatization
Interpretative Dance
Creative Dance

Rhythmic Play by Sally Tobin Dietrich, The Stanley Bowmar Co., New York, n.d., 78 r.p.m., four records as follows:

Record 1:
Skip
Walk
Slide
Hop
Jump
Gallop
Swing

Record 2:
Run
Bounce
Skip and Turn
Run and Jump
Stretch and Bend
Walk and Bounce
Skip and Jump

Record 3:
Clowns
Trains
Ringing Chimes
Elephants
Airplanes
Halloween Goblins

Record 4:
Pushing a Swing
Ponies
Grandfather Clock
Swaying Trees
Curling Smoke
Mechanical Doll
Lullaby

CHAPTER X

ART AND MUSIC

INTRODUCTION

Long before children reach school age, they express themselves creatively in various ways. It is not uncommon for the young child to show his mother a piece of paper filled with scribbled, unrecognizable marks proudly proclaiming, "Look at my picture!" His mud pies may quickly be transformed into other shapes which he confidently announces are dogs, horses, or cows. Musical instruments fascinate him by the various sounds they will render, and when pounding on an ordinary pan, he often discovers a rhythmic pattern that is as satisfying to him as it is nerve-racking to his parents. Many times in quiet play, the child is heard humming his own little tune or trying to whistle something he has heard on radio or TV.

This early interest in art and music provides the elementary teacher with countless opportunities to develop in children artistic skill and appreciation. Audio-visual materials are essential to many classroom experiences in art and music. For example, objects are basic to the recognition of form, line, color, and texture. Demonstrations are fundamental to the teaching of crafts. Films and filmstrips stimulate children's creative efforts as well as presenting information relative to principles of art and music. An overhead projector can illustrate concepts such as perspective and permit explanation to accompany illustrations. Recordings are especially useful in bringing musical classics to the classroom, and a tape recorder which records individual or group performances can be used for evaluation or listening pleasure.

In this chapter, teachers will find references to many helpful audio-visual materials that have been used in art and music programs. In art, teachers have used them to stimulate children to create, to develop skill in using various art media, and to appreciate artistic products. In music, teachers have used various audio-visual materials to induce rhythmic responses, to discover and develop musical talent, to teach musical skills, and to develop appreciation of the part music plays in happy, enjoyable living.

ART

The preschool child encounters many art concepts in his everyday life. He recognizes form—that ball is round; this block is square; Daddy makes straight rows when he plants the garden. The child also knows the basic colors—father's car is red; mother has a blue hat; the grass is green. He has experienced differences in texture. His wind-up truck runs better on the hard, smooth linoleum of the kitchen than on the soft, rough-textured living-room rug.

Often the preschool child has had direct experiences with some of the common art materials—modeling clay, wax crayons, or water colors. Although the young child has experienced art in many ways, however, he may not recognize the experience as art. Thus, in art as in other subject-matter areas, the teacher builds upon a child's past experiences and relates them to artistic expression as a universal need.

In one school, for example, a primary teacher used a film series to relate color, line, texture, and light and dark to the idea, "What is Art?"[1] Each film in this series points out art elements, such as color or line, in everyday things and encourages children to look for these elements in the world about them. Following the film experience, objects were brought to the classroom and each child was asked to explain the exhibit in terms of one or more of the art elements shown in the films. One child's contribution, a sea shell, became a conversation piece as the children felt its texture, noted the shading of its colors, or traced with their fingers its graceful curving lines.

In another class the teacher made a relation between the children's past experiences with crayons, scissors, and paper and a new experience of making pictures by the torn-paper method. A sound filmstrip served as motivating material. The teacher explained to the children that the pictures would tell what happened when some boys and girls like themselves found out that their fingers could help make pictures. The children were asked to watch the filmstrip[2] and to think of the kinds of pictures their fingers could tear.

Because the filmstrip tells the story of a village as illustrated by artistic paper tearings, the children were stimulated in their ideas of pictures which they could make from torn paper. With the children watching, the teacher demonstrated the techniques of this art form and pointed out some things to remember, such as keeping fingers close together when tearing and making many tears instead of one big, long tear. Dark-colored demonstration paper was used to enable the children to follow easily the finger movements.

A bulletin-board display of the torn-paper pictures gave every child an opportunity to exhibit the results of his efforts, and stimulated the class to talk about different ways in which their fingers had been friendly helpers.

Experiences with torn-paper pictures can be extended to tearing all the parts that make up a wall mural. Films or filmstrips will excite the children's imagination to form two-dimensional pictures with torn paper and other materials, such as cloth, yarn, and buttons.[3]

In the upper-elementary grades, the manipulation of paper will introduce children to three-dimensional design and construction. First, a child must understand that paper, as normally used, is flat. Such questions as, "Can this piece of paper stand by itself?" and "What can be done to paper to make it stand?" will start the manipulation of a paper sheet by folding, cutting, and curling it. One teacher used a filmstrip to help the class think of something three-dimensional which they could construct with paper.[4] A kinescope of a television program can be seen in illustrations of three-dimensional paper manipulations that stand or hang on the wall. Following such a film showing, the children can be encouraged by such questions as, "Is there more than one way to look at a constructed object?" "Is it important to make your construction interesting to look at from any direction?"

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[1] *Art in Action: Color; Form; Light and Dark; Line; Texture; What is Art?*

[2] *Paper Tearing.*

[3] *Art Films: Torn Paper; Filmstrip: Cutting and Pasting.*

[4] *We Work With Paper and Scissors.*

There are a number of excellent films and filmstrips which will increase the interest of children in three-dimensional forms. They may suggest the making of animals, displays and dioramas, buildings, and masks from paper. They may inspire the making of paper flowers, a paper rose, or a Christmas scene with trees and a Santa Claus, or they may encourage creative construction of [illegible] figures. Film-strips can also extend the esthetic experience of children.

Some films are particularly useful when table-top displays are being planned because they show how to plan and make layouts for a model community as well as how to construct cardboard houses and buildings. Table-top displays can often be integrated with activities in other subject-matter areas. In a health unit, one teacher provided her class with paper, paste, paints, crayons, and scissors from which they produced a creditable model to illustrate proper location of [illegible] sewage disposals and water supplies for sanitary and hygienic living.

Papier-mâché construction develops knowledge of the use of paper as an art material. Selected films not only give techniques of correct construction but also provide motivation for additional papier-mâché creations.

Because the art program in the elementary school is designed to acquaint children with a wide variety of art materials, early experiences in art will include modeling with clay. Like paper-tearing experiences, those in clay modeling should direct emphasis toward "friendly fingers" and what fingers can do with a medium that creates and holds its shape. Interest in clay modeling can be stimulated by films. In one film, a five-year-old boy, Peter, visits a family of potters and buys a bowl to give the mother for her birthday. On the way home, Peter falls down and breaks the bowl. The potter's daughter persuades her father to make another bowl for Peter, thus providing the boy with the experience of witnessing each step of the ceramic process.

In one school, a film was used to show primary children how their fingers could work when modeling a clay bowl. It was one of a series including two other films. After the film showing, the teacher repeated

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[illegible] Make a Paper Mask.

[illegible] Colonial Housing: Working with Paper.

Filmstrip: Paper Sculpture.

[illegible] Animals Come Alive; [illegible] Big Paper Modeling.

[illegible] Make a Rabbit and Scrap Picture.

Toy Model Houses.

See also [illegible].

[illegible] Make a Model: Animation: How To Make Papier-Mâché Animals.

Story of Peter and the Potter.

Clay Modeling for Beginners: Pinch Bowl.

Clay Modeling for Beginners: Preparation and Tools and Clay Modeling for Beginners: Slab Bowls.

the demonstration of the first step in forming a bowl from a lump of clay. To evaluate their work, the children placed their completed bowls on a display table. With the teacher's help they then pointed out things for their fingers to do in the future when making art objects from clay.

Children enjoy seeing the clay creation of others, and a number of excellent films show not only techniques but also results achieved by others. One successful kinescope suggests ways of adapting ideas to modeling material and of selecting modeling material to fit ideas.[1] At least two films have proved successful with primary children.[2] For upper-grade children, selected films and filmstrips will suggest a variety of shapes and objects that can be created from clay and will give helpful hints.[3] Older children will also enjoy developing their own plaster molds from which they can make sets of like products.

When planning art experiences to acquaint children with various art media and stimulate interest in them, the teacher will wish to include weaving, carving, and other crafts. Participation in activities may come about because the teacher has specifically planned them as part of the program of art instruction, or they may grow out of class interest in some phase of language arts, social studies, or science.

In one fifth-grade classroom, for example, a study of the Navajo Indians included a display of their art products. One object, a beautifully woven rug, so attracted the children that a committee was motivated to study the art of weaving. In addition to reading for information about the subject, the committee used a film.[4] From it the children gained an overview of the steps in weaving followed by the Navajos, although the picture presented material well above a fifth-grade level. When the children asked to try some weaving, the teacher first showed them a relevant filmstrip.[5] After seeing the complete filmstrip, they studied individual frames over and over again as they strung a loom and began weaving some simple mats.

When other boys and girls in the class became increasingly interested in the weaving operation, the teacher introduced weaving and other Indian crafts into the art period. To present the rudiments of raffia-woven products, a second filmstrip was used.[6] Design was introduced in relation to the various patterns of Navajo and other Indian tribes. The children used these designs in various ways. Some reproduced them in wax crayon for covers of booklets. Others carved them in soap or balsa wood for room decorations or wall plaques. One child with a wood-burning set reproduced them with this medium. Another chose wire and other scrap materials for a mobile of Indian designs. As a culminating activity, different groups of children used finger paint.

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[1] *Roll Your Ideas with Clay*, a kinescoped television program in the Museum of Modern Art Series: *Through the Enchanted Gate*.

[2] *Let's Play with Clay: Animals*; *Let's Play with Clay: Bowls*.

[3] Filmstrips: *Clay Modeling*; *Clay and Crafts*. Films: *ABC of Pottery Making: Coil Method*; *Rough Throwing*.

[4] *Navajo Rug Weaving*.

[5] *Weaving*.

[6] *Raffia Work*.

ing to make panels for a mural which depicted various aspects of Indian arts and crafts.

Throughout this unit on Indian arts and crafts, the teacher used a number of films and filmstrips. To present the fundamental ideas of design, a film series was used, in which various figures—the circle, the rectangle, the square, and the triangle—were related to designs originated and used by Indians. For children working with wax crayons, one film served to point out such techniques as shading with a broad-edged crayon. Likewise, a selected filmstrip helped those children who were making their designs on cloth. The soap and wood carvers referred to their film to find out techniques for handling their knives when carving their designs. The child who made the mobile got much help from a film on mobiles. Again, the teacher used a film on finger painting to motivate the class to try this medium. Her hopes were fulfilled when they suggested a finger-painting mural as a culminating activity.

In another school, an art unit based on the idea "Shapes with Stitches," was designed to develop interest in texture, line, shape, and color and to point out the importance of simplicity of design. A filmstrip was used to help other boys and girls make designs and pictures with yarn, scraps of cloth, and burlap. The children were asked to note such things in the filmstrip as the color and size of cloth and yarns used. After showing the filmstrip, the teacher drew on the blackboard, diagrams of the basic stitches and demonstrated how to make them. Children were encouraged to experiment on burlap with size, texture, and arrangement of yarns and cloth.

Repetition of a pattern is an important concept for children to understand in relation to design. With one primary group, the teacher introduced this concept by asking children to note the differences in the dresses worn by two girls in the class. The material in one dress had a pleasing design printed on it in contrast to the plain material in the other girl's dress. Once attention was directed to the idea of repeating a design, the children discovered a variety of patterns and a variety of ways of repeating a pattern in the clothes of other class members. Showing the children a box of scrap materials (cork, wood, blocks, spools, *etc.*), the teacher raised the question, "Could you make repeat designs by using objects from this box?" After the children had ventured their ideas, a filmstrip was shown in which boys and girls were discovering and using material from a box of scraps to make repeat designs.

Drawing for Beginners.

Broad Stroke Drawing.

Working with Wax Crayons.

Knife Craft.

Make a Mobile.

Finger Painting.

We Make Designs with Needle and Thread.

We Print Designs and Pictures.

Before beginning their projects, the children were encouraged to experiment with, select, and use designs. When experimenting, they tried different ways of using in repeat designs the materials from the scrap box. They selected a design idea, along with the scrap on which to execute it, and finally developed their own repeat design. When discussing the completed projects, teacher and children noted different prints and the materials used to make them, the way in which repetition builds a simple idea or motif into a design, and the various effects achieved by individual class members.

Other activities related to printing repeat designs can be extended for older children by introducing stenciling or linoleum and wood-block printing. For such projects, films will again be helpful to the teacher both for motivating and for teaching techniques.[10] There is also a set of 2" x 2" slides, that will be useful in stimulating creative color harmony and composition in design.[11]

The art teacher's box of scrap materials will serve as a "what-is-it" collection,[12] for its contents can be used in the making of many art objects. Both teachers and children will gain profitable ideas for use of scrap materials from seeing certain films and filmstrips which emphasize the use of common, everyday objects in the construction of toys, three-dimensional forms, and art objects.[13]

The making of puppets and marionettes provides another use for many materials in the scrap box, and can be integrated with activities in social studies and language arts, or carried on as separate art projects. Children enjoy watching puppets, but they enjoy making their own even more.

In one classroom, a long-term project was centered in Peter the pioneer puppet. This project was integrated with a social studies unit about pioneers. In this way, the life of people in our developing United States became more real as the children dressed Peter, made background scenery for his various roles in pioneer life, and wrote historical plays for Peter and his other pioneer companions to perform. Throughout the project with Peter the puppet, the teacher used a number of projected materials. A color-sound film provided basic information for constructing Peter's main parts—head, hands, and dress.[14] For a detailed study of puppet making, three filmstrips were used.[15] Supplemented by demonstrations and assistance from the teacher, these filmstrips provided a participating experience in which children viewed and then performed. A certain film illustrated the way stories are told by puppets.[16] When seeing such stories, children can watch for movements made by the puppet in talking, using his hands, or moving from one position on the stage to another.

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[10] For example, Films: *How To Make Potato Prints; How To Make Linoleum Block Prints.* Filmstrips: *Making and Using Stencils; Stenciling.*

[11] *Modern Decorative Painting and Design.*

[12] See Ch. VII.

[13] Films: *Toys from Odds and Ends; Make a Space Design.* Filmstrip: *Experiments in Sculpture.*

[14] *How To Make a Puppet.*

[15] *Puppet Bodies and Costumes; Puppet Heads and Hands; Puppet Stage and Scenery in the Classroom Craft Series.*

[16] *The King and the Lion.*

Demonstrations by the boys and girls themselves will be helpful to other members of the class. As groups of children observe each other's puppet plays, their comments and suggestions can be turned into constructive criticism. How can Bob make his puppet seem more real? What would you suggest to make next week's play more interesting? What other movements can Mary's puppet make to show that he is very happy?

Puppet plays offer children many opportunities to share their classroom work with other children and with their parents. When well presented, these plays involve exercise of the skills of language arts, show factual information acquired from units of study, and provide enjoyable entertainment for the audience.

Whether the child is reproducing from a model or conceiving a creation in his mind's eye, it is essential that he *see* in terms of the basic art elements—line, space, pattern, and color. Experiences such as have been already described give evidence that teachers have taken this *seeing* into account. For example, in the activity of manipulating paper to make three-dimensional designs, the teacher emphasized "seeing their construction" when the children were asked to consider the many ways of looking at a constructed object.[17]

Although children can be taught the rudiments of artistic creation as they experience various art media, it is necessary at times for teachers to give direct instruction. One teacher found the overhead projector particularly helpful in acquainting children with the concept of perspective. This projector enabled the teacher to face the class as she sketched her illustrations, which were projected on a screen behind her. On transparent acetate sheets, she made simple drawings with a wax crayon to demonstrate relative size of objects in the background and objects in the foreground in order to achieve perspective or depth of scene. This technique of demonstration was also used to illustrate shading as it related to perspective.

Another teacher used the felt board and patches of different colors to illustrate the meaning of the terms *hue* and *saturation*. Beginning with red, yellow, and blue, the teacher placed on the board patches of intermediate colors between red and yellow, yellow and blue, and blue and red. Essentially, this demonstration was reproducing a color wheel which denotes the *hue* value of various colors in relation to the primary colors. To illustrate the idea of "saturation" in colors, the same teacher started with a bright red paint. Progressively she added white paint, and with each addition of white paint, she colored a strip of paper. These strips were exhibited so that the children could see the variation in tint or shade that resulted when the original saturation of the red paint was changed. This demonstration was followed by a film which reinforced the concept of primary colors and their relationship to secondary colors and their immediate shades.[18] To show children how

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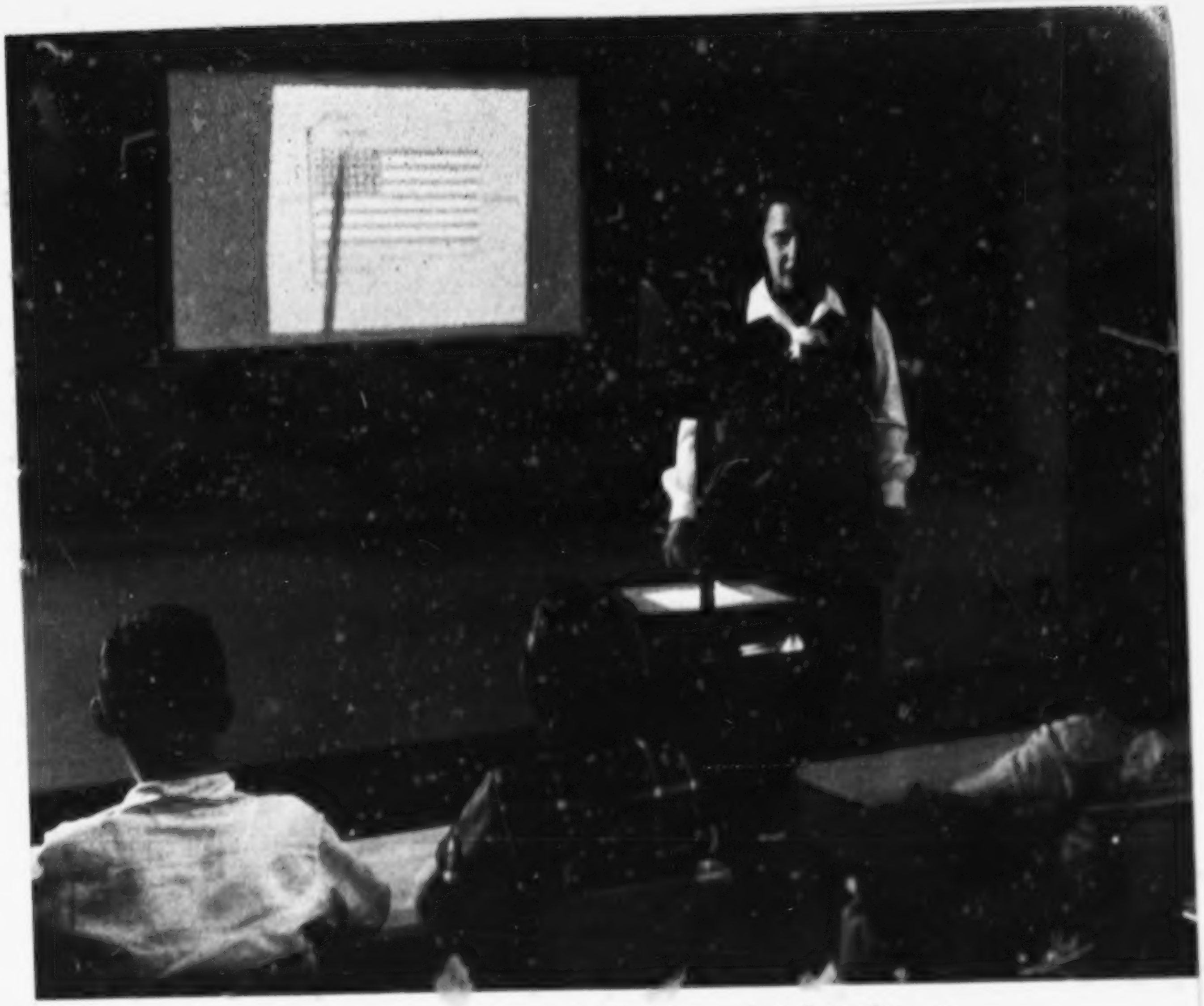
[17] See also the film, *Tell Your Ideas with Clay*.

[18] *Painting: Learning To Mix Colors*.



14. *Learning is often facilitated by projected teacher- or pupil-made materials.*

to use the brush and how to give dimension to objects, two films were used.[39]

Children often need encouragement in picturing their feelings or impressions about an experience. One teacher used a recording to stimulate her boys and girls to draw the story conveyed to them by this music.[40] A pupil reported that she drew a bubbling pool in the center of a forest. Elves and fairies ascended from the pool and danced around its edge. In explaining her drawing, she pointed out that the rapid *harp glissandi* at the beginning of the selection had suggested the pool, and the definite waltz characteristics of the music had suggested the dancing fairies and elves.

Similar creative inspiration is apparent in one of the kinescoped television programs.[41] Here children are exposed to such sounds as cats meowing or trains whistling while suggestions are given as to ways in which these sounds can be expressed in lines and color. Filmstrips will help children to see pictures within their surrounding environment or to create them in the mind's eye.[42]

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[39] *Painting: Learning To Use Your Brush; Painting: Solid Forms.*

[40] *The Nutcracker Suite.*

[41] *Paint a Picture of Sounds.*

To sharpen the child's ability to see stories in pictures or to "read" pictures, teachers may turn to comic strips, magazine picture stories, or aesthetic films. Some comic strips use the simple line drawing to register actions and expressions that relate various exploits and describe characteristics of the child or adult depicted.[43] Several years ago, a magazine drawing presented a nine- or ten-year-old boy's activities of the day. This picture story reflected the boy's thoughts as well as his actions by the skillfully drawn facial features.[44] Careful study of such drawings can reveal much to the child in terms of the flow of lines used by an artist in conveying a verbal idea. A number of films with only musical backgrounds on the sound track have been produced which can also be used to stimulate creative expression in art.[45] For children who show advanced artistic perceptions, art experiences in abstract forms may be extended by opportunities to see experimental films.[46]

All teachers of art are concerned with developing appreciation of artistic products and helping children to form standards of good taste. The basis of appreciation and understanding is knowledge. Working with the various art media builds a background of information out of which appreciations evolve; likewise, a child's experience with line, color, and texture in his own creations will instill a knowledge of these art principles and will thus increase his understanding and appreciation of the artistic creations of others.

Studies of the life and times of artists throughout the world in relation to the concepts presented in their works, broaden a child's understanding of people and lands beyond his immediate community. Thus, a frame of reference is established for the development of tasteful selection and discriminating observation.

Several series of 2" x 2" slides are available to help teachers present interpretations of everyday life by various artists. For example, one set enables children to see the way in which some of the great masters have interpreted things children know about and more than likely have experienced.[47] Older children will find another slide series interesting as well as informative. This series of slides presents the paintings of world-known artists beginning with the Italian pre-renaissance period and extending through modern American artists, such as Grandma Moses.[48] These slides can be used to trace the changes in art that have occurred throughout the years, or selected ones can be shown in connection with a social studies unit that emphasizes a given period in the historical development of our nation and of other nations in the world.

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[42] *Water Color Painting; Sketching with Crayons; Painting with Water Colors.*

[43] For example, *Henry; The Little King.*

[44] Rockwell Kent drawing featured in *The Saturday Evening Post.*

[45] Cf. also two films: *Bird Hunt; The Great Adventure.*

[46] For example, *Color and Light No. 1; Light Play; Black-White-Gray.*

[47] *A Day at the Circus by Master Painters; Great Artists Paint Life on the Farm.*

[48] *Appreciating Art Through the Ages.* The individual sets of slides included in this series are listed in the bibliography at the end of the chapter.

Films which recreate the lives of artists or which link the past to the present make the past seem more real to children and do much to promote an understanding of art as part of a people's development. They also help to foster an understanding of the relatedness of people, nations, and times to artistic works. Similar understandings develop when art is integrated with social studies[49] or language arts, as in the activities describing the Navajo art and craft project.

The child's art experiences in the elementary grades are designed to develop in him the attitude that in some ways art is open to all, and to encourage him to discover the way he can best express his artistic desires. These experiences also stimulate incentive to continued growth in the appreciation and enjoyment of beauty. Both objectives are important to the development of well-rounded individuals. Art, in a sense, is being brought down from its ivory tower to become the privilege of all, when a teacher encourages boys and girls to create, and provides a rich learning environment which permits them to practice their knowledge and skills in using the various art media.[50]

MUSIC

In music, as in art, teachers in elementary schools are concerned with helping children to develop an appreciation and enjoyment of music for their later school years and their adult life. The music program is also similar to the art program in providing a wide range of experiences for the child in order to give him background in music. He is offered the opportunity to become acquainted with different musical instruments, to acquire skills in group and individual singing, to learn to play an instrument, to develop a sense of rhythm, and to experiment with creating music and using self-expressive activities.

The music program is planned both for children who lack musical abilities and for those who are highly talented. Many primary classrooms will contain a music corner in addition to reading and play corners. Here, sound-making or rhythm-making objects are located. A phonograph or record player with collections of recordings is available both for instructional and relaxational purposes. A tape recorder may be considered a part of this music corner and is useful for comparing and evaluating growth in musical skills as well as in reading or speaking skills. A piano and other musical instruments are essential parts of the classroom environment.

When teaching children about various instruments and the sounds they make, teachers will find field trips, recordings, tape recordings, and films useful in providing or supplementing basic instruction. To interest children in the sounds made by various instruments, one teacher took her class to visit a music store. Later, wooden and soap-carved models, as well as a bulletin-board display of experience charts and pictures of musical instruments, became an important part of the music corner.

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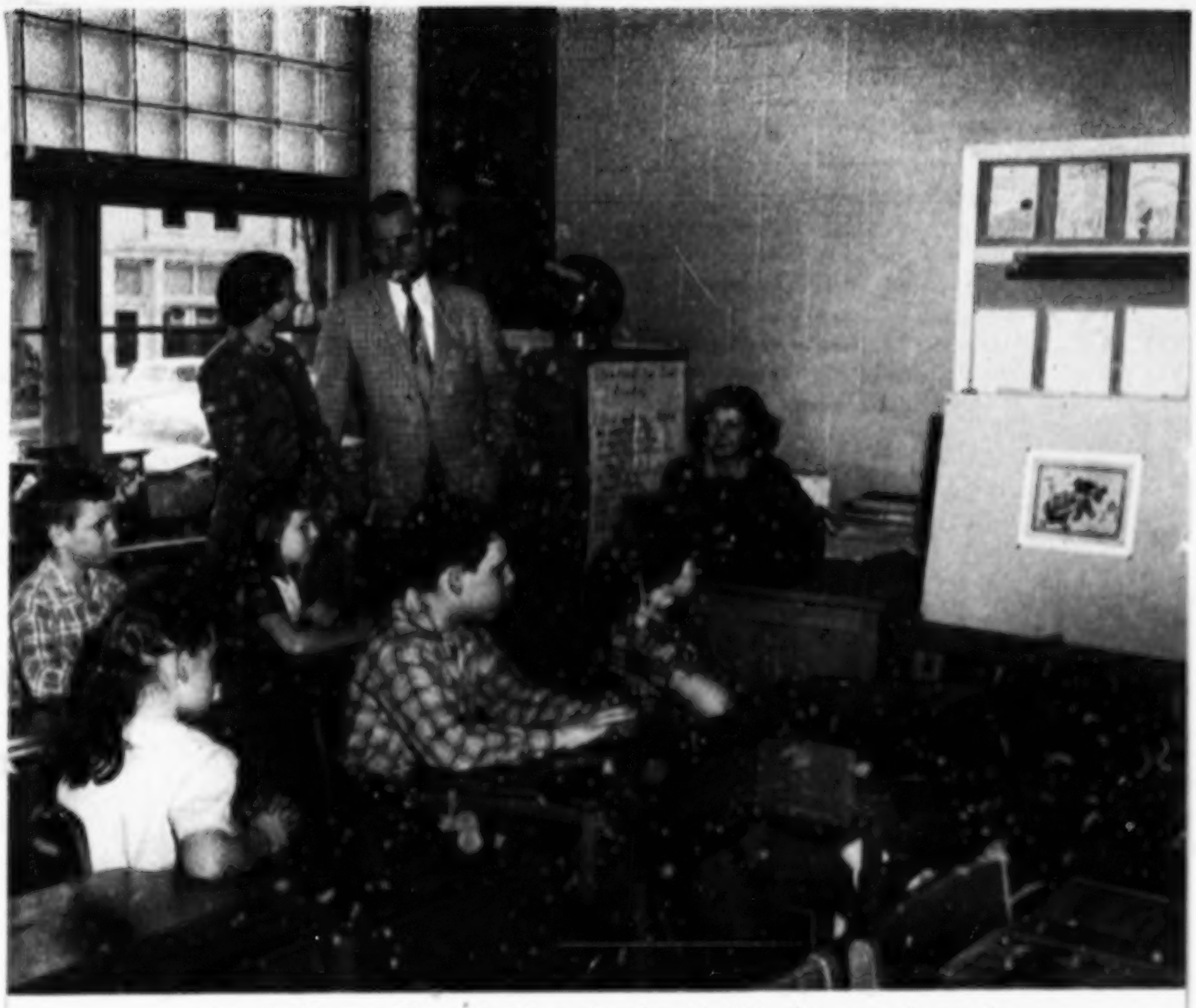
[49] *Titian, the Boy Painter: Art and Life in Italy.*

[50] Perhaps the great contribution of current television quiz programs is the realization which they awaken that the cultural aspects of life are open to all.



15. *Radio provides valuable and enjoyable listening experiences in language arts classes.*

Another teacher periodically invited various musicians from the local symphony to visit the classroom. After each musician had demonstrated and discussed his particular musical instrument with the children, he was asked to play a selection which the teacher recorded. In the days following the visit, the children frequently listened to the tape recording to recall how the particular instrument sounded. This teacher also had available for instructional purposes and for reference a useful series of records for primary children, featuring the string, brass, and woodwind instruments of a symphony orchestra; the records played portions of musical selections written especially for particular instruments.[51] A series of similar records are available for intermediate grades and are listed in the references at the end of this chapter.

Films may be used in connection with a study of the various ways in which sounds are made.[52] Art work and graphs have also been used in filmstrips to explain the production of sounds in stringed and horn instruments. Such drawings can be most helpful in extending firsthand experiences in sound.[53]

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[51] *Recognition of Instruments.*

[52] See Ch. VI.

To relate construction of an instrument to the method of playing it and to the kind of tones produced, good filmstrips are helpful. There is one which not only explains the construction of the violin but emphasizes the skilled craftsmanship that goes into the making of this instrument, which is beautiful both in appearance and in tone of music rendered.[54]

For a class whose previous musical background had been very limited, a student teacher used a combination of recordings and still pictures to introduce instruments of the orchestra and provide basic information about them. This use of pictures and recordings came about because projectors and projected materials were not available. To begin her instruction, the teacher played recordings of simple works that featured clearly defined instrumental solos. As these recordings were played, she showed large photographs of particular instrumentalists and symphony orchestras. On succeeding days, she used a recording that featured each instrument of the orchestra.[55] Pictures of the instruments were displayed. Soon the children were able to identify each instrument by its particular tone. Following this instruction, the student teacher and friends of hers demonstrated a number of instruments. At the conclusion of the unit, children were able to identify musical instruments by sight and to recognize them in solos.

An upper-grade music teacher, in a unit about symphony bands and orchestras, used for basic instruction five films.[56] As a culminating activity, the children constructed a table-top model of a symphony orchestra. The conductor and players were made from pipe cleaners; instruments, chairs, music stands, and other essentials were drawn to scale and cut from various weights of cardboard. This exhibit became part of the school display for the annual "parents' visiting day"; and for subsequent classes which studied this unit, it became one of the basic materials in audio-visual instruction.

In similar studies about orchestral instruments and instrumental music, teachers will find helpful a series of kinescoped television programs.[57] In this series, which is listed in the references at the end of the chapter, small musical groups and soloists demonstrate the various orchestral instruments and discuss the music written for these instruments with an audience of children from the elementary grades.

When a child shows an interest in learning to play some musical instrument, the teacher will wish to provide him with additional information about various other instruments so that, by comparison, he can either select a new instrument or further his knowledge of an instrument already chosen. Detailed information about the construction, care, and techniques of playing the major instruments of band and orchestra is presented in one filmstrip series.[58] A child's interest in playing an instrument can be stimulated by films that show a well-known instrumentalist or by recordings of a well-known musician's performances. For example, one recording features a champion drummer demonstrating basic strokes on the snare drum.[59] A study of musical instruments can also encompass instruments native to other countries; or the music of a particular people can be included in a social studies unit. A film on Chinese musical instruments would be most helpful to a teacher in illustrating foreign customs; for rarely would the *Hu-chin* (Chinese violin) or the *yang chin* (Chinese xylophone) be available for classroom exhibition in an American school.[60]

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[53] *Science of Musical Instruments.*

[54] *The Violin.*

[55] *Special Instruments of the Orchestra.*

[56] *Instruments of the Band and Orchestra: Introduction; Instruments of the Band and Orchestra: The Brasses; Instruments of the Band and Orchestra: The Percussions; Instruments of the Band and Orchestra: The Woodwinds; Instruments of the Orchestra: The Strings.*

[57] *Music for Young People Series: A Musical Partnership.*

Basic to reading music either for singing or for playing an instrument is knowledge of the fundamentals of music: music signs, harmony, pitch, and rhythm. One teacher used a flannel board to teach children to recognize the staff, the clef, and the different kinds of rests and notes. She also used the flannel board when teaching the various scales. As the children progressed in their knowledge of how to read music, this teacher provided them with cutout notes which they could place on the staff to reconstruct in a few bars the notes of a song they had learned. This technique was also used when they were developing an "ear" for tonal patterns. There is also a sound filmstrip series which is helpful in teaching the tonal characteristics of the major scale.[61]

Listening to a metronome or clock will help children to become aware of a steady beat in rhythm. Variations can be demonstrated if the teacher will accent different beats on a drum, a wooden box, or an ordinary coffee can. Children will enjoy a film on rhythm, which will also serve to stimulate them to create rhythmic games.[62] One group of children found enjoyment in rhythms and learned a great deal about them through a game they devised. In this game, a child would beat the rhythm of a song familiar to the class while the other children tried to recognize the tune. When a child recognized the song, he would begin to sing, and the rest of the class would join in. The child first recognizing the tune would then take his turn beating out the rhythm of his favorite song.

For basic instruction in the time-values of different notes and rests and their significance in rhythm, there is a helpful series of filmstrips.[63] For introducing melody and harmony in music, there are two films which are useful to supplement both basic instruction and appreciation of music essentials.[64]

Enjoyment and appreciation of vocal selections are increased when children have some understanding of the meaning of a song. Historical information about the writing of a song will therefore increase interest in it. One teacher cut from a magazine a series of pictures depicting scenes to illustrate the words of "America, the Beautiful."[65] These pictures were mounted on cardboard and projected with an opaque projector. When the words of this song were taught, the pictures explained the meaning of the lines. In evaluating this experiment, the teacher felt that the children sang their song more significantly because the words now held a meaning for them. Pictures of this kind can be copied with a 35mm. camera to make sets for 2" x 2" slides. Handmade slides can be made by typing the words of songs on cellophane with carbon paper and then mounting the cellophane between glass. Children will enjoy making their own slides to illustrate the words of songs, either from their own drawings or from tracings of pictures in books, magazines, or other printed materials.

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[58] *Music Instruments—Bassoon; Cello; Clarinet; Flute; French Horn; Snare Drum; String Bass; Trombone; Trumpet; Tuba; Violin.*

[59] *Technique of Snare Drumming*, performed by Charles Spies.

[60] Cf. Film: *Musical Instruments of China.*

[61] *Notes in Staff Town.*

[62] *Rhythm is Everywhere.*

[63] *Rhythm Magic.*

[64] *Melody in Music; Harmony in Music.*

One useful series of films uses shadowgraph techniques to dramatize four favorite folksongs.[66] In one film, animated puppets enact the narrative of three folksongs;[67] in another, animated pictures tell the story of the little hen which changes color and nests in different places.[68] These films will serve to encourage boys and girls to dramatize their favorite songs with shadowgraphs or puppets. An inspiring Christmas film pictures for children the dramatic historical circumstances that led to the writing of the classic Christmas carol, "Silent Night."[69] Children will also enjoy the film which explains the stories told in three well known ballads.[70]

For each decade of our history, the people have recorded their thoughts in song. Folksongs and ballads record the problems, the despair, and the humor of situations. In studies of this kind, children may discover that an event which took place in their own community has been recorded in song. In this way, music, as well as art, can be integrated with the social studies. Moreover, children can express themselves in music by writing ballads about current community events. In art and music, as in the other subject-matter areas, the teacher's knowledge and use of audio-visual materials can make the child's experiences rich, varied, stimulating, and informative.

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[65] *Coronet.*

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Stenciling, YAF; McGraw-Hill, 1952, 36 frames, silent, color.

String Bass, University of Nebraska, 1951, 48 frames, silent, black and white.

Trombone, University of Nebraska, 1951, 49 frames, silent, black and white.

Trumpet, University of Nebraska, 1952, 41 frames, silent, black and white.

Tuba, University of Nebraska, 1952, 51 frames, silent, black and white.

Violin, University of Nebraska, 1953, 45 frames, silent, black and white.

The Violin, National Film Board, 1947, 21 frames, silent, black and white.

Water Color Painting, YAF; McGraw-Hill, 1952, 31 frames, silent, color.

We Make Designs With Needle and Thread, EBF, 1954, 49 frames, silent, color.

We Print Designs and Pictures, EBF, 1954, 49 frames, silent, color.

We Work With Paper and Scissors, EBF, 1954, 49 frames, silent, color.

Weaving, YAF; McGraw-Hill, 1952, 44 frames, silent, color.

Working With Paper, William P. Gottlieb, distributed by EBF, 1955, 52 frames, silent, color.

Working With Wax Crayons, William P. Gottlieb, distributed by EBF, 1955, 52 frames, silent, color.

2" x 2" Slides

Appreciating Art Through the Ages, Series, Society for Visual Education, Inc., New York, color, nine sets.

Italian Pre-Renaissance Painters, one set of nine slides; one set of ten slides.

Italian High Renaissance Painters, three sets of ten slides each; one set of eleven slides.

Flemish Painters, one set of four slides; one set of five slides; two sets of ten slides each; one set of nine slides.

Dutch Painters, four sets of ten slides each.

German Painters, one set of six slides; one set of nine slides.

Spanish Painters, one set of eleven slides; two sets of seven slides each; two sets of ten slides each.

English Painters, one set of ten slides.

French Painters, one set of five slides; two sets of ten slides each; two sets of nine slides each; one set of eight slides; one set of eleven slides.

American Painters, three sets of ten slides each; one set of six slides.

Basic Library of Modern Paintings, Society for Visual Education, Inc., New York, color, seven sets, totaling 100 slides:

Italian, five slides.

Dutch and German, eleven slides.

Spanish, five slides.

English, four slides.

French, twenty-four slides.

American, forty-six slides.

Mexican, five slides.

Basic Library of Traditional Art Master Pieces, Society for Visual Education, Inc., New York, color, eight sets, totaling 100 slides:

Italian, 23 slides.

Flemish, eight slides.

Dutch, ten slides.

German, six slides.

Spanish, seven slides.

English, eighteen slides.
French, fifteen slides.
American, thirteen slides.

Famous Artists Around the World Series, Society for Visual Education, Inc., New York, color, fifteen sets:
  Italian Painters of the Pre-Renaissance, nine slides.
  Italian Painters of the Early Renaissance, nine slides.
  Italian Painters of the High Renaissance, ten slides.
  Representative American Painters, fifteen slides.
  Representative Dutch Painters, fourteen slides.
  Representative English Painters, fourteen slides.
  Representative Flemish Painters, fourteen slides.
  Representative French Painters, fourteen slides.
  Representative German Painters, thirteen slides.
  Representative Italian Painters, fourteen slides.
  Representative Japanese Painters, five slides.
  Representative Mexican Painters, ten slides.
  Representative South American Painters, ten slides.
  Representative Spanish Painters, ten slides.
  Representative World Painters, fifteen slides.

Introduction to Art Appreciation, Society for Visual Education, Inc., New York, color, eight sets:
  Animals and Water Fowl Painted by Great Artists, ten slides.
  Day at the Circus by Master Painters, six slides.
  Famous Artists Paint Child Life Around the World, ten slides.
  Great Artists Paint Life on the Farm, nine slides.
  Modern Decorative Painting and Design, ten slides.
  Paintings That Tell Stories by Famous Artists, ten slides.
  The Seasons Painted by Artists of Many Lands, ten slides.
  Sports and Games Painted by Great Artists, eight slides.

RECORDINGS

Music Appreciation, The Stanley Bowmar Co., New York, four sets of ten-inch recordings, 78 r.p.m.

Nutcracker Suite, Radio Corporation of America, New York, one twelve-inch recording, 33⅓ r.p.m.

Recognition of Instruments (Primary Series), The Stanley Bowmar Co., New York, twelve ten-inch recordings, 78 r.p.m.

Recognition of Instruments (Intermediate Series), The Stanley Bowmar Co., New York, ten ten-inch recordings, 78 r.p.m.

Special Instruments of the Orchestra, Radio Corporation of America, New York, two ten-inch records, 78 r.p.m.

The World's Greatest Artists, The Stanley Bowmar Co., New York, thirteen twelve-inch recordings, 33⅓ r.p.m.

Evaluation is a basic factor in developing a good learning environment. Effective learning results as teachers and pupils assess the elements in learning and work toward determined goals. . . .

Learning is determined largely by effective evaluation. Evaluation has to do with values, with purposes, with hypotheses and with continued and cooperative use of the evaluation process as an integral part of teaching and as a means of pushing ahead for educational improvement. . . .

A spirit of continuous improvement is a healthy one for a school faculty, for an individual teacher or for an individual child. Such a spirit keeps us alert to change.

Association for Supervision and
Curriculum Development,

Creating a Good Environment for Learning
1954 Yearbook

4

EVALUATION

CHAPTER XI

EVALUATION

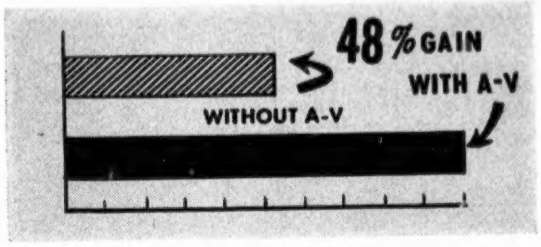
THE TEACHER'S SELF-EVALUATION

Audio-Visual Check List. Teachers who make an effective use of audio-visual materials need a comprehensive picture of the program, and information concerning availability of equipment and materials, how to use them, and how to measure results. The following check list is a guide to help teachers test their knowledge of the general audio-visual program in their schools:

A. Knowledge of Equipment
   1. Who is responsible for AV equipment in my school?
   2. What audio-visual equipment is owned by my school?
   3. Where is this equipment located?
   4. How do I secure it for use in my classroom?
   5. How do I operate it?

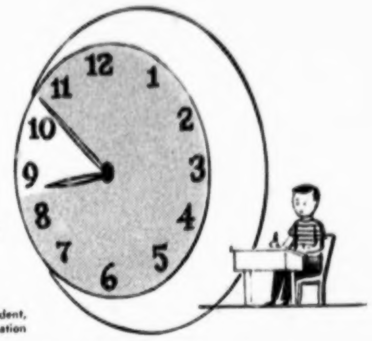
Research and Experience Prove

MORE LEARNING IN LESS TIME



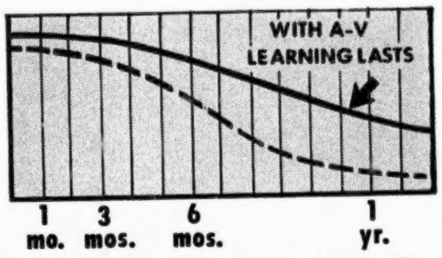
48% gains in elementary grades, up to 85% in specific subjects.
—Wittich and Fowlkes, Wisconsin

" AUDIO-VISUALS CAN SAVE AT LEAST ONE HOUR PER DAY OF LEARNING TIME "



—Bruce Findlay, Associate Superintendent,
Los Angeles City Board of Education

IMPROVES REMEMBERING

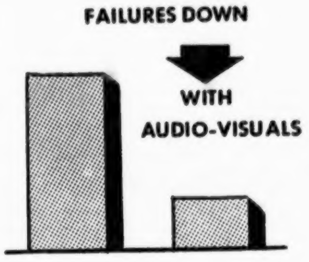


22% more knowledge retained after three months.
—Knowlton and Tilton, Yale

REDUCES FAILURES

Failures dropped from 60% to 18%
—Wood, Columbia, and Freeman,
University of Chicago

Poor students kept pace with others.
—Wittich, Wisconsin



B. Knowledge of Materials

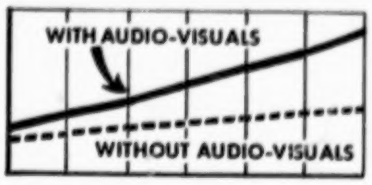
1. What audio-visual materials are owned by my school?
2. What is the procedure for borrowing them?
3. How do I learn what materials are available from sources outside my school?
4. How do I order materials from rental libraries?
5. How do I request the purchase of certain audio-visual materials for the school's permanent collection?
6. Do I know that there are many unfilmed audio-visual materials, such as exhibits, trips, felt boards, and bulletin boards?

C. Knowledge of Use

1. Do I correlate audio-visual materials with the curriculum?
2. Do I prepare myself for using any audio-visual material by becoming well acquainted with it?
3. Am I aware that the teachers' guides available for most films provide valuable suggestions on their proper use?
4. Have I been arranging some preparation for my classes before they see and/or hear audio-visual materials?
5. Do I use audio-visual materials under the proper physical conditions (universal visibility, proper ventilation, *etc.*)?

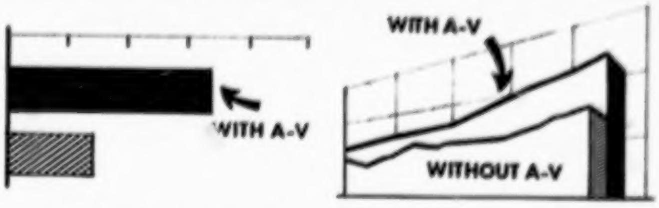
the VALUES OF AUDIO VISUAL MATERIALS

STEP UP SKILL-LEARNING



Many studies show reductions in learning time, increases in quality, and more information retained.

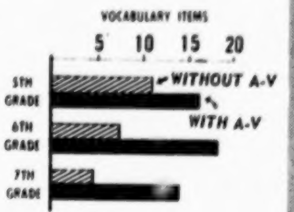
BUILD READING SPEED AND COMPREHENSION



Studies show that audio-visuals generally stimulate learners to read more and understand better.

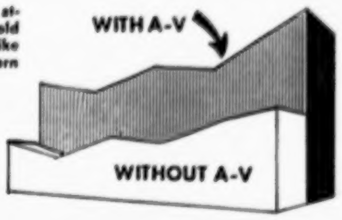
SPEED LANGUAGE LEARNING

Vocabulary is increased and learning time shortened with audio-visuals. In foreign-language teaching, audio-visuals are especially effective.



MAKE PEOPLE WANT TO LEARN

Audio-visuals build attention, attract and hold interest; learners like them and like to learn with them.



6. Have I been using follow-up activities to relate audio-visual materials to the current unit of study?
7. Do I keep for future reference a simple evaluation of all materials used?

D. Knowledge of Administration

1. Who is the audio-visual coordinator in my school?
2. What services can I expect from the coordinator?
3. How much budget is available to me for audio-visual materials?
4. How are pupils being used to assist in the audio-visual program of my school?

E. Knowledge of Results

1. Am I aware that audio-visual materials, properly used, will help me to teach more information in less time?
2. Do I know that pupils taught through audio-visual materials will remember more information for a longer time than those not so taught?
3. Have I realized that pupils will show increased interest in things which they can see, hear, touch, and make?

EVALUATION OF THE CLASSROOM LEARNING EXPERIENCE

Evaluation—A Continuing Process. Today is a crucial time in the education of American youth. There is such a vast amount of knowledge to be presented in a school day that teachers must call upon the processes of audio-visual communication to *help them teach effectively.* It has been established that films, filmstrips, recordings, and other audio-visual devices are so effective in themselves that they may be used in the classroom to present certain factual information to children.

These audio-visual aids must be selected with care, however, and with a definite educational purpose in mind. Any good teacher is constantly evaluating the effectiveness of the learning experience in the classroom. Several questions might be asked as a follow-up after the use of audio-visual materials:

Was the presentation vivid and lasting?
Was time used economically because permanence of learning was achieved?
Has the experience been related to the reading program in such a way as to build vocabulary (our only way of expressing thought processes)?
Has the experience been worth-while in establishing desirable incentives to citizenship, scientific understandings, and aesthetic appreciations?
Have certain skills been developed through observation of the same skill graphically presented?
Will this classroom experience lead to a desire to know more about the subject presented?
Has the presentation been stimulating to thought?

Educators agree that evaluation is always a part of the learning process and that learning is more effective when teachers and pupils *daily* make joint decisions about problems to be solved, work to be done, materials to be used, and goals to be achieved. Such teacher-pupil evaluation of audio-visual materials is therefore the natural completion of their effective use.

Techniques of Evaluation. There are certain objective ways of measuring educational outcomes. *This measuring of effectiveness is the professional responsibility of every teacher*, for in these days of urgency, time must not be wasted by repeating ineffective lessons or techniques. Teachers may, however, wish to use a variety of measurements in place of, or in addition to, tests, either oral or written. There is no one way to evaluate, and if there were, it would be dull indeed to use it over and over again. Techniques of evaluation therefore challenge the resourcefulness and skill of every teacher.

Suggestions are given below which may be of some help to teachers in devising different methods of evaluating educational films or other audio-visual materials after they have been used:

1. A discussion film may be used as a basis for class participation. Let one part of the class take the affirmative while the other takes the negative. Immediately after the film showing, record arguments from both sides. After time has been allowed for further research and study on the subject, record the discussion. By this method it is possible to teach children the difference between fact and opinion and to show them the value of critical analysis as opposed to snap judgments.
2. In grasping meaning, multiple showings of motion pictures may be just as essential as multiple readings of paragraphs. When a teacher feels that the content of a film has not been clear, there should be no hesitation in re-showing the film.
3. A sound film may be run again without sound at silent speed. A child or group of children may give commentary over a microphone. This technique can serve as a test while at the same time allowing children an opportunity to develop fluency in oral expression.
4. As a part of open-book tests in social studies or other subject areas, books with pictures, maps, and diagrams may be used.
5. Tape recordings may be used to improve oral speech by comparing results before and after making the recordings.
6. A filmstrip with "stills" from a motion picture of the same title may be used to present certain ideas for a second time through a second medium. Pupils may profit from an opportunity to discuss these ideas.

In evaluating, it is true that factual information is easier to measure than the development of attitudes. Nevertheless, a change in behavior patterns should certainly result from experiences which have been meaningful to pupils. It is well, however, for teachers to remember that pupils are different. Some learn more quickly through one medium than others. Bearing this fact in mind, therefore, teachers will wish to use different approaches and constantly to judge their effectiveness in a particular situation. The following criteria might be useful in evaluating the audio-visual materials used for instruction:

1. Does the material fulfill its purpose?
2. Is it accurate and authentic?
3. Is it worth the time, effort, and expense involved? Could other material achieve the educational objectives just as effectively?
4. Is it suitable for the age, intelligence, and experience levels of the group?
5. Does it integrate with the curriculum?
6. Will this experience motivate further study?
7. Is it appropriate for the size of the group? (For example, flash cards and small objects should be used in small groups.)

During a lesson on personal cleanliness, one educational administrator was impressed by the great interest of a fifth-grade class in a film which they had been shown. He was equally impressed by their ability to answer all the questions asked by the teacher. On the basis of classroom discussion, the administrator could have assumed that these boys and girls would practice good health habits; he reports, however, that the boys did not wash their hands when they stopped in the rest room on their way to lunch. Was the lesson effective? Behavioral patterns can never safely be measured by verbal tests alone.[1]

Indications of Effective Use of Audio-Visual Materials. Teachers are living in an exciting time. Never before have they had such a variety of tools at their command to be used with skill, imagination, and ingenuity in producing an educational product of the finest type. It must be remembered, however, that the teacher is a human engineer; it is the teacher's deft handling of these new resources which will determine what happens in the child's educational experience.

Since there are so many audio-visual materials available, some of good and some of dubious value, teachers must spend much time in educational planning for each lesson to be presented audio-visually. Methods and materials must be evaluated in terms of purpose; they must have sound educational value. Teachers must examine closely the possible influence of the chosen methods and materials on the attitudes, appreciations, and behavior patterns of pupils. These broader learnings are difficult to evaluate, but they may influence behavior for many years.

Fortunately, teachers need not depend entirely upon their own ability to evaluate audio-visual materials; for there are a number of satisfactory services available. Many professional audio-visual magazines and special publications regularly evaluate and review audio-visual materials.[2]

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[1] Reported by L. C. Larson, *Director*, Audio-Visual Center, Indiana University, Bloomington, Indiana.

[2] See Ch. II, References.

Educators know that there will always be honest differences of opinion concerning what various materials can do for children. The size of the task of evaluating is large and teachers must make use of all possible methods and techniques.

The Teacher's Evaluation of The Lesson. Although the questions below are directed to a teacher using audio-visual materials, they might also, with the exception of the last one, be directed just as well to a teacher using traditional methods of instruction:

1. Did I make ample preparation for the lesson?
2. Did I have definite educational objectives in mind?
3. Were these purposes clear to the pupils?
4. Was there evidence of comprehension and interest among the pupils?
5. Was the lesson an enriching, rewarding experience?
6. Were follow-up activities used, such as, discussing, applying, extending, and testing?
7. Did these follow-up activities prove effective?
8. Have I used a variety of materials and were they productive of the greatest educational dividends with this particular group?
9. Am I building a personal list of audio-visual resources which I have found effective for specific curricular purposes? (*A few simple notes on 3" x 5" cards and based on actual classroom experiences are invaluable.*)

Certainly the final test in the use of audio-visual methods of instruction is what happens in the minds of pupils as a result of a teacher's use of these new means of communication. The only valid question is always, "Has meaningful learning really taken place?"

In the final analysis, it is the teachers themselves who must consider wisely their instructional resources, analyzing carefully their value. The index to worth is the degree to which instructional resources help children to feel poise and satisfaction in living, to extend their life space, to develop competence in solving problems, and to build socially significant meanings.

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Dale, Edgar, *Audio-Visual Methods in Teaching*, revised edition, Dryden Press, New York, New York, 1954.

Ely, Donald, "Audio-Visual Checklist," *Normal Instructor*, December, 1955.

Haas, Kenneth and Packer, Harry Q., *Preparation and Use of Audio-Visual Aids*, Prentice-Hall, Inc., 1950.

Hadsell, Reign S., "Evaluation—Has Learning Taken Place," *Audio-Visual Instruction*, October, 1956.

Kinder, James S., *Audio-Visual Materials and Techniques*, American Book Company, New York, New York, 1950.

CHAPTER XII
APPENDICES

1

PARTICIPATING TEACHERS

Adams, H. E.
McKinley School
Muncie

Ade, Harriet
Willard-Douglass School
Kokomo

Alcorn, Nina
Twp. House School
Marion County

Anderson, Dorothy
Indiana State Teachers College
Terre Haute

Armstrong, Ellen W.
First Presbyterian Church
Henderson, Kentucky

Armstrong, J. W.
First Presbyterian Church
Henderson, Kentucky

Arney, Mary
Freedom Public School
Freedom

Arthur, Sister Virginia Mary
Saint Columbkille
Chicago, Illinois

Bagnoli, Marie
School #86
Indianapolis

Bailey, Marjorie
Forest Park School
Muncie

Baker, Marguerite
School #18
Indianapolis

Barnett, Garnet
Center Twp. #4
Marion County

Barton, Mary F.
School #91
Indianapolis

Beaman, Mary Jane
West Newton School
Marion County

Bell, Rosalyn[1]*

Berry, Sarah
Grambling College
Grambling, La.

Biller, Warren
Hobart High School
Hobart

Black, Alice
Southport High School
Marion County

Black, Frances
Willard-Douglass School
Kokomo

Bonczyk, James
Emerson School
Gary

Bowman, William
Elkhart

Boyer, Kathy
Angola

Brown, Wilma
School #71
Indianapolis

Bundy, Charles
Bloomington High School
Bloomington

Butz, Marguerite
Lawrence Central High School
Marion County

Byers, George*

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[1] *The Committee on Preparation regrets being unable to establish complete identifying information for all participating teachers; their names are, nevertheless, included and marked with an asterisk.

Caley, Eleanor H.
School #72
Indianapolis

Carithers, Carol
Elmwood School,
Danville, Illinois

Causey, Marjorie E.
Laboratory School
Terre Haute

Cedars, Mary E.
Roosevelt School
Kokomo

Christenberry, Uldene Rose
Dennis Jr. High School
Richmond

Cochran, Ray
School #20
Indianapolis

Collins, Donald
Elkhart

Combs, Olga Polly
Laboratory School
Terre Haute

Conder, Dorothy
Leavenworth
Illinois

Cook, Helen P.
Elwood Haynes School
Kokomo

Crisler, Merrill L.
Central High School
Muncie

Dalton, Mary Ann
Perry Jr. High School
Marion County

David, David W.
University School
Bloomington

Davis, Lyle
Twp. House School
Marion County

DeLong, Virginia
School #80
Indianapolis

Deporte, Charles
Indianapolis City Schools
Indianapolis

Dimmock, Thomas, a report of observation of Kenneth G. Faris, teacher,
University School, Bloomington

Dinkel, Gertrude
Harry E. Wood School
Indianapolis

Dixon, Avanelle H.
Maywood School
Marion County

Dixson, Elizabeth
School #23
Indianapolis

Doods, Sally Belle
School #12
Indianapolis

Dunbar, George
Prin., Meridian School
Kokomo

Dunkin, H. M.
Center Twp. #4
Marion County

Dunwiddie, Robert S.
Harry E. Wood School
Indianapolis

Dysert, Freda
University School
Bloomington

Eldridge, Catherine
School #57
Indianapolis

Ellis, Joe
Elliott School
Munster

Epler, Mercedes
Riley School
Marion County

Ewing, Rosalind
School #84
Indianapolis

Fager, Jean
Willard-Douglass School
Kokomo

Farrar, Eleanor
Bon Air School
Kokomo

Feaser, Paul R., student teacher under the guidance of Mrs. Helen Blackledge, Southern Heights School, Fort Wayne

Fine, Marion Edward
Ben Davis High School
Marion County

Fisher, Perle L.
Warren Central High School
Marion County

Galvin, Winifred
School #58
Indianapolis

Gammins, Gertrude
Riley School
Hammond

Gardner, Martha
Theodore Potter School
Indianapolis

Glover, Reggie
Putnamville School
Putnamville

Goodus, A.
School #1
Indianapolis

Gorgas, Verna
Franklin Twp. School
Marion County

Graus, Helen W.
School #84
Indianapolis

Gregory, Mary B.
Westlake School
Marion County

Guiliano, Bernice
Oaklawn Sedgwick County
Wichita, Kansas

Gunn, Grace
Louis C. Ward School
Fort Wayne

Guss, Joanna S.
School #33
Indianapolis

Hadley, Reba
Maple Avenue School
Terre Haute

Hail, Yvonne
Rosedale School
Terre Haute

Hall, Lois
Noble Twp. School

Hamilton, Esther P.
School #52
Indianapolis

Hardy, LaVerne
Angola

Harp, Jane
Allison School
Speedway City

Harper, Leo
Harry E. Wood School
Indianapolis

Harris, Clara E.
Ft. Harrison
Marion County

Harris, Loretta
Oaklandon School
Marion County

Hart, Gertrude
Angola

Hart, Richard
Elkhart

Hartman, Ruth
Wanamaker Elementary School
Marion County

Hays, Jane
Speedway City Schools
Speedway City

Hendrickson, Orvel
Mars Hill School
Marion County

Henshaw, Donald W., a report of a use by Helen McCaniel, Parkview-Central Elementary School, Bedford

Herrick, Merlyn
Milbank High School
Milbank, South Dakota

Hight, Margot
Meridian School
Kokomo

Hipkiss, Eleanor L.
Lawrence School
Indianapolis

Hollingsworth, Mary
Meridian School
Kokomo

Horn, Barbara L.
Knightstown

Houck, Pauline
Ben Davis School
Marion County

Iler, Irene
James A. Allison School
Marion County

Inman, Ina
Drexel Garden School
Marion County

Isaac, Garnette
School #70
Indianapolis

Jett, Tom, Jr.
Southport High School
Marion County

Johnson, Frances
Pleasant Run School
Marion County

Johnston, Bernice
Willard-Douglass School
Kokomo

Johnston, Mildred I.
Sunnyside School
Marion County

Jones, Audrey Zube
Freedom School
Freedom

Kammerer, Hester
Maple Avenue School
Terre Haute

Kemp, Jerrold
Dade County Schools
Miami, Florida

King, Noel
Clinton Twp. School
Wanatah

King, Paul
Meridian School
Kokomo

Kirk, Marilyn
Bloomington High School
Bloomington

Knisely, Yvonne
Meridian School
Kokomo

Koch, Norma
School #18
Indianapolis

Kruzan, Robert F.
Scotland Comm. Schools
Illinois

Lampton, Mary A.
Indiana State Teachers College
Terre Haute

Lang, Carl
Westlake School
Marion County

Leiter, C. R.
Central School
Kokomo

Leslie, Nellie
School #70
Indianapolis

Longere, Doris
School #72
Indianapolis

Lopez, Jovencia R.
Manuel Roxas High School
Phillippines

Majella, Sr.
Schmidt School

Mallers, Martha Jane
Central School
Bluffton

Mallory, Drusilla
Elkhart

Manuel, Nila
Prin., Highland School
Terre Haute

Martin, Betty
West Newton School
Marion County

Martin, Freda
Deming School
Terre Haute

Means, Dorothy
P. S. Jones High School
Washington, North Carolina

Milazzo, Tony
Laboratory School
Terre Haute

Miller, Helen W.
Deming School
Terre Haute

Million, Mary E.
Palmer School
Kokomo

Mitchell, Virginia
Laboratory School
Terre Haute

Morning, Ardith
Spencer Community Schools
Spencer

Moseley, Goldia
Lincoln Jr. High School
Lawrenceville, Illinois

Murdock, Leone
School #34
Indianapolis

Murphy, Gladys
Theodore Potter School

Indianapolis
Myers, Vera
Angola

McMullen, Robert E.
School #71
Indianapolis

McNeil, Lorna
Public Schools
Vincennes

Nale, Ione
Star City High School
Star City

Nard, Jerry
Franklin Twp. School
Marion County

Nicholas, V. R.
Meridian School
Kokomo

Nordsieck, Carl
School #71
Indianapolis

Payne, Marie
Pleasant Run School
Marion County

Pearcy, Iva
Theodore Potter School
Indianapolis

Pedigo, Ethel
School #1
Indianapolis

Penrod, Blanche
Southport High School
Marion County

Petts, Helen D.
Indiana State Teachers College
Terre Haute

Plake, Beulah
School #30
Indianapolis

Plummer, Emerson
School #3
Indianapolis

Pollard, Oscar*

Porter, Rosalind
Jasonville Schools

Quigley, R. B.
Tipton

Rabb, Emma
School #18
Indianapolis

Raines, Marie
School #34
Indianapolis

Rammell, W. H.
Haynes School
Kokomo

Reid, Virginia

Richardson, N. C.
Lawrence #4 School
Marion County

Richey, Helen
Indiana State Teachers College
Terre Haute

Rifat, Hammad Mohamed
Cairo
Egypt

Robinson, Don*

Roderick, Connie
Drexel Garden School
Marion County

Root, Corinne F.
School #7
Indianapolis

Ross, Marion W.
French Lick School
French Lick

Ruff, Virginia
Elkhart

Ryan, Charles
Angola

Rybolt, Beulah
Drexel Garden School
Marion County

Sawyer, Kathryn
Rhea School
Terre Haute

Schumacker, Raymond
Grove Cons. District #11
Jasper County, Illinois

Seltz, Herbert
Stewart School
Oxford, Ohio

Shipley, Rev. Robert
Oregon Baptist Church
Terre Haute

Shockley, Frances
Roosevelt School
Kokomo

Shonkwiller, Ada Lee
Union Twp. High School
Bargersville

Siegsmund, H. A.
Liberty School
R. R. #1, Chesterton

Skinner, Valerie
Riley School
Elkhart

Smith, Freda
Kiley School
Marion County

Smith, James R.
Thomas Carr Howe High School
Indianapolis

Smith, Leulla
Steuben School, District 111
Kankakee, Illinois

Smith, Myrtle
Laboratory School
Terre Haute

Smith, Ralph
Riley School
Kokomo

Soderstrom, Walter
39 Forest Avenue
Riverside, Illinois

Speckhard, Karl
Boone Grove School
Boone Grove

Spries, Alvin
Danville Public Schools
Danville, Illinois

Stapley, Betty S.
University School
Bloomington

Stevens, Beulah
School #20
Indianapolis

Stouder, Barbara Jane
Indianapolis

Stouder, Jane
Crawfordsville Sr. High School
Crawfordsville

Strahla, Sherman
Mars Hill School
Marion County

Street, Virginia W.
Central Cons. High School
Dubberly, Louisiana

Stuck, Helen
Southport High School
Marion County

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* See footnote on p. 138.

Stultz, Gwendolyn
Owensburg Public School
Owensburg

Sutherland, Lucile
Cumberland School
Marion County

Teegarden, Juanita
Angola

Tileston, Virginia
School #68
Indianapolis

Toner, Delores
Noble Twp. School
St. Paul

Topper, Richard E.
Mt. Vernon Public Schools
Mt. Vernon

Topping, Betty
Louis C. Ward School
Fort Wayne

Trinkle, Frieda
University School
Bloomington

Tripp, Norman
School #52
Indianapolis

Troyer, Paul K.
Willard-Douglass School
Kokomo

Truett, Gertrude
Glen Park Elementary School
Gary

Tucker, Ethelyn
McKinley School
Kokomo

Turpin, Janet
Speedway Elementary School
Speedway City

Vaughn, Katheryn
Fairview School
Bloomington

Vera, Marian
Elkhart

Walton, Bernice
McKinley School
Elkhart

Watson, Ovia A.
Portage Twp. High School
East Gary

Weaver, Hilma
Laboratory School
Terre Haute

Webster, Sherman N.
School #87
Indianapolis

Welch, Pauline
School #59
Indianapolis

Werneke, Richard
Gerstmeyer Tech High School
Terre Haute

Wetmore, Dorisann
Cooks Corner School
Valparaiso

Wilmer, Sylvia L.
Pleasant Run School
Marion County

Wilson, Mary
Willard-Douglass School
Kokomo

Wise, Virgil
School #86
Indianapolis

Witsman, Ival L.
Union Joint School
Indiana-Ohio, College Corner, Ohio

Wood, Emma*

Wycoff, Blanche
Batesville School #2
Batesville

Wykowski, Casimir A.
Center Twp. #4
Marion County

Yunker, Bessie
Lawrence Twp. #4 School
Marion County

Zimmerman, Marie
Castleton School
Marion County

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* See footnote on p. 138.

2

DIRECTIONS FOR MAKING AN ELECTRIC BOARD[2]

Size and type of materials are the first considerations in making an electric board. The dimensions should be determined by use; however, in most situations an electric board need not be larger than 24 by 36 inches. A wide variety of materials may be used, depending upon desired permanence. Inexpensive materials such as stiff cardboard or poster board are suitable, provided they are of sufficient rigidity to resist bending. Quarter-inch plywood is very satisfactory material if a more durable electric board is desired.

The layout of the board will depend upon the specific material to be presented. One way of designing it is to space out a number of problems down the left half of the board and then form a second column of answers down the right half of the board similar to a paper-and-pencil matching question.

Step One:

In addition to the poster board, necessary materials include the following: a small direct current buzzer (approximately $1.25); a six-volt dry-cell battery ($.90); 20 feet of one strand, light, insulated wire (obtained at any hardware or television supply store for 1 to 2 cents/foot); and 18 large-size paper brads (about $.25 per box).

Step Two:

One array of material is placed in a column down the left side of the board with the matching answers or ideas in the right-hand column. Holes are drilled into the poster board opposite each problem and answer, and a copper brad is inserted into each hole.

Step Three:

After removing about two inches of insulation from each end of a length of wire, wind one end around the extended prongs of a brad next to one of the problems, while connecting the opposite end to the brad adjacent to the correct answer. Then spread the prongs apart, insuring a tight connection.

Step Four:

The buzzer and battery are connected in series. This is done by connecting a short wire from one terminal of the battery to one terminal of the buzzer—it makes no difference which terminals are selected. Then a three-foot length of wire is connected to each of the remaining terminals (one on the battery and one on the buzzer). The wiring is then checked by removing the insulation from its two loose ends and touching these ends together. If the wiring has been done correctly, a loud buzz should be produced when the ends meet.

---

[2] Adapted from John Moldstad, "Let the Electric Board Help You Teach," *Educational Screen*, September, 1955, pp. 295-297.

Two additional holes are next drilled near the bottom of the poster board, through which two loose wires are pushed to the front of the board. These two wires should be long enough to reach all brads beside the problems and all possible answer contacts, respectively.

If you prefer a small lamp instead of a buzzer, substitute a six-volt lamp with socket and two lead wires in place of the buzzer, and make the same wiring connections. You will also have to make a hole in the board the size of the lamp socket and push the lamp assembly into this hole from the front of the board.

If you desire both lamp and buzzer, simply connect all three in series. Your science teacher or local radio repairman will probably be happy to help you if you have any difficulties with the wiring.

Now face your electric board with one loose wire in each hand and try out your creation. If you touch one wire to the brad beside a problem and a second wire to the brad beside the correct answer, the electrical circuit should be completed with visual or audio-acclaim.

The cost of this device can be only the cost of a battery, buzzer, and/or lamp, if salvage materials are skillfully used. If all materials are purchased, an electric board similar to the one described will probably cost between $2 and $3.

3

MAKING AND USING A FLANNEL BOARD[3]

"The more I work with my flannel board, the more possibilities I see in it," a recreation director told me as he finished demonstrating some of the teaching materials he had constructed to use on his homemade board.

He and several dozen other university students in a graduate class in the utilization of audio-visual materials had been on the lookout for inexpensive new teaching tools which they might develop as projects. Stimulated by Wayne University's film, "The Feltboard in Teaching,"[4] and the work some of the students were doing in a graphic arts course, the group began experimenting with the construction and use of the flannel board, less expensive than the feltboard and equally effective.

While the flannel board is not actually a new teaching tool, having been used in classrooms and Sunday schools for many years, its potentialities are relatively unknown to many teachers. The fact that all kinds of cut-outs can be moved around on the flannel surface at will, without the inconvenience of thumb tacks or the messiness of altered chalk drawings, makes the board invaluable for the building up of concepts or the easy rearrangement of separate symbols for drill or planning activities.

Its very simplicity makes it ideal for several kinds of pupil participation. For example, boys and girls enjoy making the cut-outs which they will manipulate on the flannel board while learning number combinations or new words. Older pupils taking industrial arts can even make the boards needed in their classrooms. Flannel boards can evidently be used at home too, since several students reported that their very small children were fascinated by the pictures which they could move, and promptly demanded boards and pictures of their own.

The principle of the flannel board is quite simple. Any light-weight cut-out or object with a slightly-rough flat surface will adhere to the nap of a piece of flannel stretched on a rigid backing of heavy cardboard, wall board, or plywood. A slight pressure of the hand will cause the cut-out to stay in place, even though the board is vertical. Only experimentation will reveal the unlimited ways in which this principle can be utilized.

On the elementary level, some of the common uses of the flannel board are for color recognition, number combinations, reading readiness, story telling, word recognition, dramatization, reading music, map work, composition in art, relationships of fractions, and the development of charts.

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[3] Betty Stoops, "Facts and Fun on Flannel Boards," *Educational Screen*, October, 1952, pp. 324, 325, 345. (Reprint.)

[4] Produced by Audio-Visual Materials Consultation Bureau, College of Education, Wayne University, Detroit, Michigan. 10 minutes, sound, color. Purchase price, $75.

On junior and senior high school levels the flannel board can be used just as widely for such things as foreign language vocabulary and grammar drills, weather maps, political and economic maps, diagrams for game plays and dance steps, floor plans for furniture arrangement, scale layouts for planning large areas such as gardens or whole farms, plans for engineering drawings, and maps and recognition drills for driver training.

Recreation directors in the class found additional uses, including the demonstrating of knot tying, presenting safety rules for campers, teaching Indian sign language, planning recreation facilities, and even titling amateur movies or sets of slides. Teachers and administrators who are called upon to present talks for adult groups in the community can easily adapt many of these uses to their own needs and at the same time introduce another audio-visual technique to interested parents.

The flannel board which is basic to all of these uses is easy and inexpensive to construct. Its dimensions should be determined by its use, although 30" x 40" and 36" x 48" are commonly recommended sizes. If the board will always be used with small groups of children gathered immediately in front of it, it can easily be half the usual size. However, fairly large cut-outs are easier for small hands to make and to manipulate, so that a small board may not offer ample work space. A board which is hinged in the middle, so that either one half or the entire surface can be used is one solution. Again, a football coach would probably prefer a longer, narrower, one-piece board for a permanent diagram of a football field.

The teacher who needs additional bulletin board space, as well as a flannel board, can use both sides of a piece of wall board, merely covering one side with flannel and finishing the edges neatly, so that either side is equally presentable. The uncovered side can be painted a neutral color, although that is not generally necessary. A frame is optional, but it adds to the appearance and the durability of most boards. It can be made from an old picture frame, molding, or strips grooved to fit the board.

The price of the flannel used seems to make little difference in its performance. Students who paid 39 cents a yard were just as well satisfied with the results as those who paid 89 cents. One student used felt, at $2.25 a yard, because he wanted to trace an outline map of the United States on a very durable surface. The others preferred less expensive covers which could be dyed any desired color or replaced when soiled. They found that a careful brushing of the dyed flannel restored its nap to the necessary thickness. The most popular colors were medium green, dark green (especially for playing field diagrams), black, light blue, white, and red. Several students who wanted two flannel surfaces stitched a jacket of the material to be slipped onto a board without a frame. In any case, the flannel needs to be stretched carefully before it is finally fastened in place.

The simplest means of supporting the completed board seems to be the ever-present chalk-rail, although hanging the board by hooks or a wire will probably be more satisfactory. A small, light-weight board will stand on a hinged cardboard easel, for use on a desk or low table. Large boards can be hinged across the middle to provide two sloping surfaces or merely a smaller dimension for storage or moving about. Door bolts or strips of wood slipped through heavy staples on the back of the board will hold a large hinged board open rigidly. A small board can be fitted with a durable handle-hanger for easy portability.

The materials to be used on the completed board will vary widely. Pictures, diagrams, symbols, word strips, or actual models made of paper will adhere to the flannel if they are backed with small pieces of medium-grade sandpaper or flannel. It is important, when mounting materials for the flannel board, to be sure that they are dried under a weight and stored so that they will remain flat. If thin paper which would be damaged by dampness is to be used, drymounting is recommended for applying the sandpaper. With heavier paper, which requires only small bits of sandpaper, paste or glue is satisfactory. A kindergarten teacher in the class found that small children can prepare pictures easily by fastening the small pieces of sandpaper or flannel in place with bits of cellulose tape.

For variety, figures can be cut from cloth, oilcloth, novelty papers, blotters, sandpaper, balsawood, or any other light-weight material. Students found that some of the materials, including art construction paper, blotting paper, cloth, sandpaper, and balsawood, need no additional rough-surfaced backing to make them adhere, although a slight rubbing with sandpaper will sometimes improve the grip of the smoother ones. Colored yarn and rough-textured string can be used effectively for lines, and pieces of sponge, dyed dark green, make realistic shrubbery. Textile paint, poster paint, fluorescent paint, and India ink are useful for adding eye-catching color. Common fabric dyes work very well on the background flannel.

One's own imagination is actually the only limit in using this attractive, colorful, flexible, and inexpensive teaching tool. An investment of a few hours and fewer dollars will pay dividends in pupil interest and teaching effectiveness.

4

DIRECTIONS FOR MAKING CHARTS

Types of Charts

1. Dictionary to help with bothersome words
2. Learning of skills: to recognize and spell names, numbers, *etc.*
3. Personal interests correlated with reading—developed around events in the individual's life
4. Creative story recording
5. Experience recording
6. Teaching—built for developing and establishing concepts
7. Recording of plans
8. Diary of accomplishments: important happenings
9. Rules and standards of work
10. Suggestions for study
11. Progress reports
12. Directions to follow
13. Information gathered
14. Reminders and announcements

Principles

1. The chart should serve the purpose for which it is intended.
2. It should be simple and unified.
3. It should be suited to the ability of the children.
4. There should be adequate word control.
5. The mechanics should be good.
6. The sentences should be phrased in thought units.

Illustrative Purposes

1. Aid to learning
2. Encouragement in language development
3. Aid in organization of ideas
4. Record of experiences
5. Aid to concentration

Suggestions for Attractiveness

1. Neatness
2. Balance
3. Illustration
4. Appeal

Soundness of Composition

1. Childlikeness
2. Complete sentences
3. Accurate ideas
4. Clear expressions

Methods of Creating Reading Aids

1. Lay them out in thought phrases
2. Provide for good return sweep

5. Have good cues (context and pictures)
6. Pay attention to control of vocabulary (repetition, selection, etc.)

General Helps

1. Printing should not run to edges. (At least a one-inch margin right and left.)
2. Start title 3" from top.
3. Start first sentence about 3" from title.
4. Words should be undivided.
5. Space words so that each word has individuality; yet there will be a pleasant move to the next word.
6. Space letters so that they have individuality but are close enough to make the words hang together as a unit.
7. Letters have relative spacing: open letters such as J L T A create their own space.
8. Vary spaces between letters according to the shape of the letters.
9. Usually place illustrations at top or bottom. In dictionary charts, place them at the side.
10. Heavy lines are usually more legible than fine lines.
11. Letters made by fat, even strokes are more legible than tall thin letters.
12. The most legible style of letter has the stroke ⅙ of its height.
13. Using all upper case (capital) letters makes for more difficult reading.
14. In lower case, the short letters are usually made half as high as the tall.
15. Slightly above or slightly below half is a height often used for aesthetic purposes.
16. The distance from the midpoint should be very slight.

Tools

Paper: Heavy Kraft
Temporary
Manila
Tagboard
Newsprint

Size: Uniform sizes—better for display and storage 20 x 24, 24 x 30, 24 x 36

Lettering Implements:

Ball point pens
Lettering brush
Felt point pens
Liners and spacers
Sharpened crayons or wax pencil
India Ink
Paint
T Square
Yard Stick

Lay out:

Gather all the information you will place on the chart.
Plan the placing and arrangements.
Figure spacing. Think of height and width of letters.
Rule accurately. Draw lines lightly.
Plan at least ¾ inch spaces.

Plan any illustration.
With small ruler or T Square lightly sketch letters with pencil.
Carefully use just enough ink.
Keep letters uniform in pattern (height-width-style).
Be sure vertical lines are straight.

5

PERMISSION FORM FOR A FIELD TRIP

The University School

Elementary Division

To the Parents of Elementary School Children:

Providing enriched learning experiences for the children in our elementary school often requires that we leave the school building.

Children leaving the building on school journeys either will go with the class group under the supervision of the teacher and student teachers or they will go in groups of three or four under the supervision of a college student whom we deem to be competent.

Although every precaution will be taken to insure the safety of each child on school journeys, our responsibility must be limited to reasonable standards of precaution applicable under such conditions.

We are asking that parents provide us with a signed approval of their child's participation in these school journeys. Only those children who return this form properly signed may engage in these journeys.

To the University School of Administration:

I hereby give permission for my child to engage in school journeys sponsored by the school as outlined above. I understand that these educational journeys may be taken by bus, car, or on foot.

Signed: ------------------------------------

Parent

Date: ------------------------------------

6

EVALUATION FORMS

EFLA Evaluation

Film Title: Length: Reel(s) _____ Min. _____
Subject-Matter Field: Date Produced _____
Producer:
Purchase Sources:
So.___ Si.___ B & W___ Color___ Sale Price___ Rental___ Free ___
Evaluation Institution: Date of Evaluation _____
Names and Titles of Evaluators:
Synopsis: (About 75-100 words, as detailed as possible. Do not use producer's summary.)

I. List the possible audiences, and the purposes for which the film could be used. Rate probable value for each purpose.

Audience	Purpose	*Value* Low				High
1.		1	2	3	4	5
2.		1	2	3	4	5
3.		1	2	3	4	5

II. Recommended age level: primary____, elementary___, junior high____, senior high____, college___, adult___.

III. Sound: Poor_____ Fair_____ Good_____ Excellent _____
Photography: Poor_____, Fair_____ Good_____ Excellent_____

IV. Comment and General Impression: (Note here any special points as to authenticity, bias, or attitude; also a brief statement of how the film affects you.)

V. Your estimate of the value of the film: Poor____ Fair____ Good ____ Very Good____ Excellent____

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Sherman Film Evaluation Form

Evaluator's name _____________________
Teaching assignment or position _____________________
Film title _____________________ Date viewed _____________
Directions: Circle the number that best indicates your rating.

1. *Relevancy of the Subject Matter to the Curriculum*

0	1	2	3	4	5	6	7	8	9	10
Extraneous or unrelated				Related to the curriculum				An integral part of instruction		

2. *Accuracy of the Information*

0	1	2	3	4	5	6	7	8	9	10
Grossly misconstrued				Fairly accurate (acceptable)				Authentic and undistorted		

3. *Organization of Film Content*

0	1	2	3	4	5	6	7	8	9	10
A jumble of poorly planned sequences				Not too difficult to follow				Logically and clearly presented		

4. *Scope of Film Content (Select A or B)*

	0	1	2	3	4	5	6	7	8	9	10
A.	Too *many* concepts				A few *too many* but acceptable				Right number of concepts		
B.	Too *few* concepts				Not quite enough but acceptable						

5. *Film Length (Select A or B)*

	0	1	2	3	4	5	6	7	8	9	10
A.	Exceedingly *long*				*Long* but acceptable				Right length		
B.	Too *short*				Somewhat *short* but acceptable						

6. *Relation of Picture to Sound*

0	1	2	3	4	5	6	7	8	9	10
Unrelated				Generally work together				Complement each other		

7. *Pupil Interest*

0	1	2	3	4	5	6	7	8	9	10
Will evoke little response				Of moderate interest				Pupils will be highly interested		

8. *Pupil Comprehension*

0	1	2	3	4	5	6	7	8	9	10
Beyond grasp of pupils				Enough of film will be understood to be usable				Film will be understood		

9. *Technical Quality of the Picture*

0	1	2	3	4	5	6	7	8	9	10
Fuzzy and difficult to discern				Acceptable Sharpness				Sharp and clear		

10. *Technical Quality of the Sound*

0	1	2	3	4	5	6	7	8	9	10
Indistinct				Understandable				Clear		

11. *Emotional Effect*

0	1	2	3	4	5	6	7	8	9	10
Too disturbing or arouses asocial attitudes				Makes a contribution toward desirable attitudes				Promotes good mental health and desirable attitudes toward others		

12. *Comparative Value of the Film in Relation to Other Available Instructional Materials*

0	1	2	3	4	5	6	7	8	9	10
Adds little or nothing to other available media				Enriches or supplements the instructional program				Makes distinct and important contributions that are not available from other sources		

13. *Overall Rating of the Film*

0	1	2	3	4	5	6	7	8	9	10
Poor				Good				Excellent		

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RATING SCALE TO JUDGE THE EFFECTIVENESS OF A FIELD TRIP

Teacher: *Subject Field:* *Date:*
Grade Level: *Number in Class:*

INSTRUCTIONS: Rate by checking the appropriate column:
(1) Excellent (2) Very good (3) Good (4) Fair
(5) Unsatisfactory

		Rating Scale				
I.	*Planning*	1	2	3	4	5
a.	Teacher visited beforehand					
b.	Phoned the day before trip to insure readiness					
c.	Transportation efficiently handled					
d.	Necessary permission was gained (Adm. & Parental)					
e.	Finances were handled satisfactorily					
f.	Precautions and Safety measures were observed					
g.	Personal and physical needs were cared for					
II.	*Preparation*					
a.	Pupil interest was present					
b.	Pupils were prepared as to what to look for					
c.	The purpose of the trip was understood by all					
d.	A background for the trip was developed					
e.	Pupils were equipped with necessary materials					
III.	*Actual Trip Procedures*					
a.	All pupils could see and hear					
b.	The guide interpreted points and facts in terms of the purpose of the trip					
c.	Pupils' questions were encouraged					
d.	Incidental observation and discussion were used					
IV.	*Follow-up Activities*					
a.	Discussed and evaluated place visited					

b. Supplemented and corrected incomplete understanding

c. Introduced new problems

d. Creative projects followed

e. Test

V. *Evaluation*

a. Pupil participation present in all phases of the project

b. The trip provided for individual differences

c. The trip established desirable teacher-pupil relationship

d. The trip was integrated with several fields

e. The trip was the best technique for developing this unit of work

f. The time spent in taking the trip was well invested

VI. *General Merit*

a. Draw a circle around one of the numbers. Weight rating: I-2; II-3; III-2; IV-2; V-1. (Highest rank is one and lowest is five)

1 2 3 4 5

Comment:

EVALUATION SCALE FOR USE OF A FILMSTRIP

Exact title of filmstrip			Name of appraiser	
Producer			Position	School
Black and White or		Color	City	State
Silent or	Sound	No. Frames	Date	

A. *Curriculum Uses*

Please indicate the use you make of this filmstrip by filling in the blanks and by placing a check (√) where needed.

1. Subject matter area ______________________
e.g. American History; Biology, etc.

2. Lesson topic ______________________
e.g. The development of the colonies; Cell division, etc.

3. Grade or teaching level where filmstrip was used:
Kgn., ( ) I, ( ) II, ( ) III; ( ) IV, ( ) V, ( ) VI; ( ) VII, ( ) VIII, ( ) IX; ( ) X, ( ) XI, ( ) XII; ( )
Trade School, ( ) Coll. ( ) Adult ( )

4. Purpose or purposes for which filmstrip was used:
- **a. ( ) to introduce a lesson or topic**
- **b. ( ) to arouse interest**
- **c. ( ) to present essential facts**
- **d. ( ) to illustrate performance of skill**
- **e. ( ) to provide enrichment experience**
- **f. ( ) to provide review or test of understandings learned**
- **g. ( ) Other ______________**

5. Situation in which filmstrip was used:
- **a. ( ) one class in a classroom**
- **b. ( ) one class in a projection room**
- **c. ( ) several classes in a classroom**
- **d. ( ) several classes in a projection room**
- **e. ( ) assembly in an auditorium**

B. *Behavior Responses*

After you have used this filmstrip and you have observed the students' reactions, place a check (√) in that column which indicates how this filmstrip:

	YES	QUESTION—ABLE	NO
1. Contributed facts and ideas which the students grasped readily	( )	( )	( )
2. Aided the students in performing a specific skill	( )	( )	( )
3. Stimulated students to seek additional information elsewhere	( )	( )	( )
4. Motivated certain students to produce creative work in written, oral, artistic, musical, dramatic, or craft expression	( )	( )	( )
5. Guided certain students to discover new problems pertinent to the lesson	( )	( )	( )
6. Assisted students to collect, to organize, and to analyze information	( )	( )	( )
7. Helped students apply information to new problems	( )	( )	( )

8. Encouraged students to follow directions, and to apply these directions to new situations ( ) ( ) ( )
9. Inspired students to help others with their problems ( ) ( ) ( )
10. Moved students to develop a different attitude, i.e., toward others of another race, culture, religion, politics ( ) ( ) ( )

C. *Film Appraisal*

The following are suggested as desirable criteria for appraising this educational filmstrip. Please check (✓) the scale at the point that indicates the degree to which this filmstrip meets each criterion.

1. Relation of filmstrip contents to the lesson or topic

1	2	3	4	5
Significant		Acceptable		Pointless

2. Facts and ideas presented in the filmstrip

1	2	3	4	5
Authoritative		Acceptable		Inaccurate

3. Content organization and development adapted to the age level, i.e., interest, tempo, vocabulary, attention-span, etc.

Appropriate		Acceptable		Inappropriate

4. Situations presented in life-like manner by dramatic and pictorial filmstrip structure

1	2	3	4	5
Realistic		Acceptable		Displeasing

5. Accompanying Recording augments the visual information

1	2	3	4	5
Natural		Acceptable		Distracting

6. Comparison of this filmstrip with other instructional materials that might have been used

1	2	3	4	5
More effective		As effective		Less effective

7. Over-all appraisal of filmstrip, i.e., how well it enriched the current classroom and life experiences

1	2	3	4	5
Excellent		Average		Poor

7

AUDIO-VISUAL REPRESENTATIVES AND SOURCES

Allied, Incorporated
A-V Materials Dept.
[illegible] N. Illinois Street
Indianapolis, Indiana

Audio Devices, Inc.
R. W. Fairfield
[illegible] North Olmsted Avenue
Chicago 31, Illinois

Audio Services, Inc.
Ivan A. Wiley
1210 N. Pennsylvania Street
Indianapolis 2, Indiana

Audio-Visual Specialists
Mrs. Margaret Elbrecht
[illegible] California Avenue
Fort Wayne, Indiana

Burke's Motion Picture Co.
Mr. E. F. Burke
434 Lincoln Way, West
South Bend, Indiana

Coronet Instructional Films
Norman Cole
[illegible] Village Plaza, North Drive
Indianapolis, Indiana

Encyclopaedia Britannica Films
Howard Sanford
Box 93
Plainfield, Indiana

Gary Camera Company
Mr. Joe Zarowski
619 Washington
Gary, Indiana

Indiana Visual Aids Co., Inc.
Mr. H. L. Stoeppelwerth
726 N. Illinois Street
Indianapolis, Indiana

Audiovisual Equipment Company
G. R. Steinmetz
100½ South Chestnut St.
Seymour, Indiana

Lake-Land Educational Sales
Mr. Sam S. Shirk
401 S. First Street
Pierceton, Indiana

Modern Talking Picture Service,
Inc.
108 E. Vermont Street
Indianapolis, Indiana

McGraw-Hill Book Co., Inc.
and
Young America Films, Inc.
David Davidson
531 South Carroll
South Bend 1, Indiana

Norris Smitley Sound Service
Mr. Norris Smitley
Stellhorn Road
Fort Wayne, Indiana

Projection Equipment Company
Mr. George Wenger
Union City, Indiana

W. H. Rodefeld Co.
Mr. W. H. Rodefeld
15 E. Maryland Street
Indianapolis, Indiana

Smith & Butterfield
Mr. D. W. Henderschot
305-7 Main Street
Evansville, Indiana

Smith's Audio-Visual Service
Messrs. D. W. Smith and R. J. Durr
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